

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 689.—VOL. XVIII.

LONDON, SATURDAY, NOVEMBER 4, 1848

[PRICE 6D.]

### Stannaries of Cornwall—In the Vice-Warden's Court.

COOMBE v. BICE—BURGESS v. ALDERSON.

WHEREAS the VICE-WARDEN did, by an ORDER, or DECREE, made in the above-mentioned causes, and bearing date the 10th day of May last, Order and Decree that a SALE be made of the ORES and HALVANS, and (if necessary) the ENGINES, MACHINERY, and MATERIALS upon and belonging to ROCKS CONSOLIDATED TIN MINES, in the parishes of ROCH and ST. AUUSTELL, within the said Stannaries, under the direction of the Registrar of the Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the said Order or Decree.

Notice is hereby given, that pursuant to the said Order or Decree, a PUBLIC AUCTION will be HOLDEN at ROCKS MINES aforesaid, on Wednesday, the 15th day of November next, and following day, at Eleven o'clock in the forenoon of each day, for SELLING, either together or in lots, the under-mentioned

#### MINING MACHINERY AND MATERIALS—VIZ.:

- 1 70-inch cylinder STEAM-ENGINE, without boiler.
- 1 40-inch cylinder DITTO, with two boilers, complete, and 16 heads of stamps.
- 1 MACHINE for drawing tinstuff, with two 20-foot diameter iron fly-wheels, six inches round.
- 1 WATER-DRAWING MACHINE, with 20-foot water-wheel, 3 feet abrest.
- 1 Capstan and shears, with 60 fathoms of 10-inch capstan rope, complete.
- 130 Fathoms of TRAMROAD IRON, and wood stands.
- 3 Horse-whims, with shaft tackle, complete; 70 fathoms of 6-inch by 7-inch flat-ropes.
- 27 Fathoms of 4-inch iron flat-ropes, 1 large angle-bob, 1 small ditto, 1 9-inch plunger-pole and bottom, 7 fathoms of 12-inch plunger-lift, complete, 16 fms. of 12-inch plunger-lift, complete, several fathoms of 12, 12, 9, and 7-inch pumps, 1 8-inch and 1 6-inch working barrel, 7 fathoms of 9-inch main-ropes, 110 fms. of 12-inch launders and stands, 14 fathoms of 2-inch iron bucket-ropes, 7 bunnies, with wood floors, 1 pair of yokes, 20 fathoms of 20-inch launders, and 10 fathoms of 3-inch ditto, 70 fathoms of 6-inch rope, with a wood-built house, and other machinery, complete, 30 fathoms of white-rope, 33 fathoms of 4-inch rope; 10 fathoms of 4-inch ditto, 10 fathoms of 3-inch ditto, 2 single iron blocks, 2 double ditto, 1 treble ditto, hand-screws, several fathoms of iron chain, 2 smiths' anvils, 1 smith's vice, smiths' horse, 3 pump buckets, 1 40-inch smith's bellows, a quantity of brass, beam and scales, and weights, screwing tools and blocks, 10 knives and 4 bottoms, horse-whim kibbles, wheelbarrows and handbarrows, tramroad wagon, 2 bucket-joints, mandrill, 3 or 4 tons of old iron, and about 6 tons of cast-iron, a large number of pulleys and frames, a lot of smiths and miners' tools.

Also, the ACCOUNT-HOUSE FURNITURE, together with a large quantity and great variety of other materials in general use in mines.

For viewing the same, application may be made to Mr. M. Teague, on the mine; and for further particulars (if by letter, pre-paid) to Mr. Chilcott, solicitor, Truro; or to Mr. Stokes, solicitor, Truro.

Dated Registrar's Office, Oct. 26, 1848.

### VALUABLE COLLIERY MATERIALS FOR SALE, AT ORRELL COLLIERY, NEAR WIGAN.

The under-mentioned MATERIALS are in good working condition, and are now OFFERED FOR SALE, BY PRIVATE TREATY—the proprietors having completed the winning of one of their collieries, and have no further use for them:—

- 1 14-inch HIGH-PRESSURE BEAM-ENGINE, with boiler, nearly new.
- 1 14-inch RAM, 7 1/2 feet stroke, with plunger-pole, clack, and clack-pieces, all complete.
- 1 14-inch ditto ditto.
- 1 14-inch working barrel, 9-feet stroke, with bucket and clackdoor-pieces, quite new.
- 1 12-inch working barrel, 7 1/2 feet stroke, with bucket and clack-pieces, spare buckets.
- 1 11-inch ditto ditto.
- 1 9-inch ditto ditto, with gland, stuffing-box, side pipes, all complete, and nearly new—stroke 8 feet.
- 1 4-inch ram, 2-feet 6-inch stroke, with clack-pieces, &c.
- 1 Malleable iron off-sets joints, for pump-ropes.
- 1 11-inch clack-piece.
- 1 Windbores, for sinking pits—11 inches diameter.
- 1 Yards of 13-inch pump stocks, with bolts, rings, &c.
- 1 Wooden steam engine, 8 feet deep, 5 feet 7 inches square inside.
- 1 Ditto ditto, 7 feet deep, 5 feet square inside.
- 1 17-inch STEAM CYLINDER, 4 feet stroke.
- 1 Pair of 10-foot pulleys, for flat-ropes—new.
- 1 Cast-iron stands, for head gear—1 Old boiler, about 2 tons.
- 1 10-horse CYLINDRICAL BOILER—good.
- 1 Air-pump and condenser for 10-horse engine.
- 1 Pair of gin pulleys, 3 feet diameter.

Waltham House Colliery Office, Oct. 26, 1848.

**COAL.—TO BE SOLD, OR LET, a valuable COAL MINE,** the property of Sir Thomas G. Hesket, Bart., situate about five miles from the important manufacturing town of BLACKBURN, in the township of Great Harwood, in the county of Lancashire. The mine has been recently proved, and found, at 77 yards from the surface, to be 5 feet in thickness, and of excellent quality. It is commonly called, or known by the name of, the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots.

A section of the borings may be seen by applying to Mr. Boscoe, Rufford Hall, Ormskirk; or to Mr. Whittle, coal viewer, Charnock Richard, Chorley—to either of whom proposals may be sent.

**GLAMORGANSHIRE.—TO BE SOLD, BY PRIVATE CONTRACT,** with immediate possession, the MORRISTON FOUNDRY, and the PLANT, MACHINERY, and TENANTS' FIXTURES, and MANAGER'S HOUSE, GARDEN, and about FIVE ACRES of LAND, belonging thereto—situate about three miles from SWANSEA, on the Swansea Canal, and within a mile of the lines of the South Wales and Swansea Valley Railways, which are now in course of construction.

The WORKSHOPS are commodious, and well started with all requisite machinery, &c., for immediately resuming business, and the premises are admirably adapted for the manufacture of railway engines and carriages.

For further particulars, and to treat, apply to Messrs. Llewellyn and Randall, solicitors, No. 1, W. P. Street, C.E., Swansea; or Mr. Robert Clover, Manchester.

### VAUXHALL FOUNDRY, LIVERPOOL—TO CLOSE

A PARTNERSHIP.—TO BE SOLD, the whole of that valuable PROPERTY, known as the VAUXHALL FOUNDRY, VAUXHALL-ROAD, LIVERPOOL, consisting of upwards of 5500 of freehold, and 3000 yards of leasehold, land (75 years at a low ground rent), with all the valuable WORKSHOPS, MACHINERY, TOOLS, MODELS, &c.

The PREMISES are all of the most substantial and convenient description, and the MACHINERY and TOOLS are of the most approved construction, adapted to the manufacture of the largest description of steam-engines and every variety of machinery.

The valuable STOCK of MODELS have been all made within the last 20 years, and comprise all the requisites for carrying on an extensive business.

To any person of capital this will be found a singularly desirable opportunity, as the works are in full operation, the reputation of the place established, and the business connections of the highest class.

For further particulars, apply to Messrs. Lacey, Myers, Riggs, and Roscoe, solicitors, Liverpool.—If not sold by private treaty, the whole will be offered by public auction in the month of April, 1849, of which due notice will be given.

Liverpool, Oct. 19, 1848.

### ECONOMICAL STEAM-ENGINE—surpassing the Cornish—CRADDOCK'S PATENT DOUBLE CYLINDER HIGH-PRESSURE EXPANSIVE AND CONDENSING ENGINE, alike adapted for MARINE, LOCOMOTIVE, and STATIONARY PURPOSES.

BOILER—Tubular, free from deposit, and perfectly safe from explosion.

ENGINE—Not half the weight or bulk of ordinary engines.

FUEL—Under 3 lbs. of coal per horse-power per hour.

WATER—Under 1 gallon per horse-power per day of 10 hours, for all purposes, with air as the medium of condensation.

These engines are erected at a comparatively trifling expense, and are easily worked.

FOR SALE.

TWO 40-horse power CONDENSERS, either by air or water.

TWO 20-horse power ditto ditto.

ONE 10-horse power ditto ditto.

N.B.—The 10-horse is adapted to drive, warm, and ventilate a factory.

A PAIR OF OSCILLATING MARINE ENGINES, of 10-horse power.

PRICE.—The patentee is desirous of placing some of his engines in good hands, and would accept an extremely low price from respectable parties for the above engines.

The above invention has been known through the scientific press since the date of the first patent, in 1840, since which much thought and capital have been employed in simplifying the practical details. It is now a most simple, efficient, and economical invention, as the engines above offered for sale will practically demonstrate.

Apply to Thomas Craddock and Co., 36 and 38, Broad-street, Birmingham, where engines on the above principle may be seen at work.

Also ON SALE, THREE 4-horse high-pressure ENGINES—simply arranged and well set up—£12 per horse-power.

### THE PATENT OFFICE AND DESIGNS REGISTRY,

No. 210, STRAND, LONDON.

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION of INVENTIONS, and DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPBELL and CO. offer their services, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Steam, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campbell and Co., No. 210, Strand (corner of Essex-street).

### IRISH AMELIORATION SOCIETY.

IN COURSE OF BEING INCORPORATED BY ROYAL CHARTER.

Capital £200,000, in £10 shares.

The Right Hon. LORD DE MAULEY, Chairman.

Major-General DUNCAN M'LEOD, Chairman of Committee of Works.

OFFICES—2, WATERLOO-PLACE, PALL-MALL, and 6, KING WILLIAM-STREET, CITY.

For the employment of the peasantry in the preparation (by a simple patented process, the exclusive property of the society), of PEAT, FUEL, and CHARCOAL, for Metallurgical, Manufacturing, Agricultural, and Sanitary purposes—ensuring large profits to the shareholders; and, by removing the peat, rendering the land fit for immediate cultivation.

Applicants for shares will not become liable, under any circumstances, for more than the amount of shares they may agree to take, as they will not be required to sign any deed until the charter shall have been granted—so limiting their liability; and nothing will be required, beyond the 1s. per share deposit, until the first station shall have proved the undertaking successful.

JAMES BLAKE, Secretary.

### STAITE'S PATENT ELECTRIC LIGHT.—All COMMUNICATIONS TO PATENTEES OR PROPRIETORS are requested to be addressed to

Mr. PRICE, solicitor, 6, Throgmorton-street, City.

### TO CONSUMERS OF GAS.—The PATENT GAS-LIGHT

MONITOR—ADAPTED TO EVERY DESCRIPTION OF BURNER, and SUPPLIED at a COST placing it within the REACH of EVERY CONSUMER—regulates the flame of gas-lights to any required height—economising the consumption, and preventing the danger and inconvenience arising from the flaring of lights.

PATENTEES' OFFICE, 20, KING-WILLIAM-STREET, CHANCERY-CROSS.

### GENERAL TELEGRAPH COMPANY.—This company are

now prepared to undertake the EXECUTION, BY CONTRACT or OTHERWISE, of the most approved ELECTRIC, HYDRAULIC, PNEUMATIC, and MECHANICAL TELEGRAPHS.—Particulars of which may be ascertained by application at the company's offices, 9, John-street, Adelphi, London.

FRANCIS WHISHAW, General

NATHL. J. HOLMES, Managers.

### RIDER'S RAILWAY BRIDGE.—TO RAILWAY COMPANIES.—This BRIDGE has now been for 18 months in DAILY USE (having

a double track) on the HARLEM RAILWAY, in the State of New York, United States. The Erie Railway and the Newhaven Railway Companies have likewise adopted it.

Several other bridges, for ordinary purposes, are also being constructed. The advantages of this over all other iron bridges hitherto invented, consist in the small amount of iron required, compared with the strength obtained, in avoiding the use of any surplus weight of material, in the consequent economy of its construction, and also from its lightness, easy mode of putting together, and facility of transport, in its peculiar adaptation for foreign use.

As regards economy, it can be erected at a cost not exceeding that of a WOODEN BRIDGE, of equal capacity.

Applications to be made to Mr. Moulton, the patentee, Bradford, Wilts.

### NEW ATMOSPHERIC RAILWAY.—NO LONGITUDINAL VALVE.—The CYLINDER may be constructed of CAST-IRON TUBES,

of any convenient length—like the mains of gas or water pipes. Here an immense saving of expense will be at once effected.

These TUBES can be UNITED TOGETHER, perfectly air-tight, and a piston can be constructed to work therein—air-tight also. This accomplished, the inventor engages to preserve, for a motive-power, as perfect a vacuum as can be made; and he further engages to communicate this power, with little or no loss, from the inside of the cylinder to the outside, for the several purposes the same may be applied to—as for the PROPULSION of RAILWAY CARRIAGES—for the raising of water to heights not limited by atmospheric pressure—and, indeed, the APPARATUS will be FOUND AVAILABLE for many other purposes.—CAPITALISTS' ATTENTION IS CALLED TO THE ABOVE.

No attention will be given to communications, except made through some London solicitor, of known standing in the profession.

\* \* \* Address "O. L. Z.," Post-office, Battersea, near London.

### NEW ATMOSPHERIC APPARATUS, OR RAILWAY.

NO LONGITUDINAL VALVE.

The CYLINDER may be constructed of CAST-IRON TUBES, of any convenient length—like the mains of gas or water pipes. Here an immense saving of expense will be at once effected.

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### PATENT GALVANISED IRON AND WIRE ROPE WORKS.

MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

### FOURDRINER'S PATENT SAFETY APPARATUS, for

PREVENTING ACCIDENTS IN MINES AND OTHER PLACES.

THE ROPE OR CHAIN BREAKS.

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.
2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.
3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdriner (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdriner, 9, College-place, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

### THE PATENT SAFETY FUSE, FOR

BLASTING ROCKS IN MINES, QUARRIES, and FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and MOST EXPEDIENT

MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S. &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Cornhill, Cornwall.

### PATENT ALKALI COMPANY'S IRON PAINT.—This

PAINT is the PRODUCT of a PATENT PROCESS, and possesses PECULIAR and VALUABLE PROPERTIES, not otherwise attainable.

Its colour (as at present produced) is a rich purple-brown. It is perfectly free from the deleterious qualities of white lead.

It surpasses all other paints ever yet discovered, in point of durability and economy. Two coats of this paint are more than equal to three of any other description.

From its chemical composition, it is pre-eminently adapted for covering iron; also wood, and stucco, or brick buildings. The process by which the base of this paint is produced, makes it impossible that any change should take place in its composition from atmospheric influence. It is identical with iron secured from galvanic action, so fatal to the durability of lead and other paints on iron work.

It has been exposed on shipping to the action of sea-water, and of the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for more than three years, without change.

Its cheapness and strength render it peculiarly suitable for iron bridges, roofs, and railways, farm buildings, and shipping. It will also cover cross-slatted timber.

Price, by the ton, £25, delivered in London, exclusive of packages. Agents will be appointed for the principal towns in the United Kingdom; in the mean time, orders may be addressed to the offices of the company, No. 20, Fenchurch-street, London.

JOHN A. WEST, Secretary.

### PATENT IMPROVEMENTS IN CHRONOMETERS.

WATCHES AND CLOCKS.—E. J. DENT, 62, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and His Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8s. to 12s. each.

DENT'S PATENT DIALPHOSCOPE, or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

### TO IRON AND COAL MASTERS.—A PERSON of middle

age, brought up to, and of 30 years' experience in the erection and management of every department of iron and coal works in England, North and South Wales—20 years agent, partner, &c., of a late leading M.P., is OPEN to an ENGAGEMENT.—With testimonials, &c., address "B.," Langhorne, Carmarthenshire.

### WANTED, a PARTNER, in a FIRST-RATE COLLIERY.

IN SOUTH WALES, who can command a capital of from £3000 to £5000.—To any respectable party having the required amount—none other need apply—the present opportunity will be found to offer advantages seldom to be met with.—For particulars apply, with real name and address, to No. 10, Post-office, Newport, Monmouthshire.

### TO SPECULATING MINING GENTLEMEN.—A RARE

OPPORTUNITY OFFERS.—A MINE, which exhibits COPPER and LEAD, situated in one of the first mining counties in England, LIES IDLE, for want of £100 to £150 to take up the sett and open upon the lode.—For further information, apply (first by letter) to "H. C.," 16, Edward-street, Windsor-terrace, City-road.—N.B. This mine has had, like the celebrated Wheal Maria, a company who just skimmed the surface and left the lode.—The mine was divided into 1000 shares, and many sold for £1 and 2/2 wards per share.

### MINERAL PROPERTIES AND ESTATES.

MR. HENRY ENGLISH begs to intimate to the PROPRIETORS of MINES and MINERAL PROPERTIES, as also to ADVENTURERS in MINES, that REPORTS and SURVEYS, with PLANS and SECTIONS, illustrative thereof, will be FURNISHED by him, being aided by agents in the various mining localities, of undoubted practical knowledge and experience. Information or advice rendered on all points touching mining pursuits, which Mr. H. English feels himself competent to afford, as the result of his personal investigation and inquiries during several years of his connection with the several mining districts.—Estimates given for exploring or proving mining ground, as also the machinery requisite, with drawings.

OFFICES—No. 25, FLEET-STREET, LONDON.

### MINING INVESTMENT.—Captain JOHN HAMBLY, of

GUNTS LAKE, CALSTOCK, CORNWALL, being advantageously located in the centre of the mining districts of Cornwall and Devon, and having made arrangements for PURCHASING and SELLING MINING SHARES, &c., on COMMISSION, begs to OFFER his SERVICES to his FRIENDS and the PUBLIC generally.

J. H. having been a mine agent for 20 years in the said counties, and having a practical knowledge of mining (for which the necessary testimonials can be produced, if required), will give the fullest information in his power (without charge), and a survey, or inspection, would be made of any mining property, by himself, on moderate terms.

### MINING INVESTMENT.—Mr. R. THOMAS, of No. 8,

GEORGE-YARD, LOMBARD-STREET, LONDON (who has had upwards of 20 years' experience as a mining agent in London), having made arrangements to resume PURCHASING and SELLING MINING SHARES, &c., on COMMISSION, begs to OFFER his SERVICES to his FRIENDS, CAPITALISTS, and OTHERS, in the TRANSACTION of such BUSINESS. The unprecedented low price of mine shares renders the present a most favourable period for investment, with the prospect of large returns.—The fullest information (without charge) will be given relative to mining operations and investments; and a survey, or inspection, if required, of any mining property will be made by a competent party, on moderate terms.

### MINING OFFICES.—ESTABLISHED FIVE YEARS.

THOMAS F. THOMAS begs to inform his friends and the public; that he has REMOVED from No. 16, Threadneedle-street, to No. 3, GEORGE-YARD, LOMBARD-STREET, LONDON (late Messrs. Phillips and Tindley's).

N.B.—Dealer in English and Foreign Funds, Mining, Railway, Gas, and other shares.

### MR. R. TREDINNICK, THREE KING'S COURT,

LOMBARD-STREET, LONDON.

Continues to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously upon personal application.—MONEY ADVANCED upon the above securities.

### MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND

AND MINING SURVEYOR.

5, WHITEFRIARS-STREET, LONDON.

### JAMES LANE, MINING SHARE DEALER,

80, OLD BROAD-STREET, LONDON.

### BRITISH AND FOREIGN MINING SHARES, &c.

BARTLETT & CO., 58, LOMBARD-STREET, LONDON, having for DISPOSAL SHARES in DIVIDEND-PAYING MINES, at home and abroad, solicit the attention of capitalists who may be desirous of investing in such securities, whereon 30 per cent. per annum may be realised.—Statistical information may be afforded gratuitously, and money advanced upon mining, railway, and other securities.

### MR. ROBERT WAKE, CHEMICAL COMMISSION

AGENT AND METAL BROKER, HULL, has always ON SALE, at manufacturers' prices, SUGAR-HEAD, VEGETABLE NAPHTHA, ACETATE LIME, ACETIC ACID, ALKALI, SULPHATE COPPER, &c.—delivered in London, Bristol, Liverpool, and Glasgow.—N.B. OLD COPPER WANTED.

Hull, Nov. 3, 1848.

### MR. JAMES TODD, LAND AND MINE SURVEYOR,

AGENT AND VALUER, having studied EMIGRATION for some years past, not only as an outlet for our surplus population, but to find out if it is really a profitable means of investing capital; and being well convinced that it is desirable for both purposes, Mr. TODD, from a long and careful research, is enabled to POINT the LOCALITIES that will most quickly and profitably pay back the outlay; and he OFFERS his SERVICE to EMIGRATION COMPANIES, SOCIETIES, or to PRIVATE INDIVIDUALS, fully assured, that if his instructions are acted upon, all the great faults which have been committed in selecting locations at random will be avoided. Mr. Todd not only being well aware of the capabilities of the land, but also of the minerals contained, is prepared to show the perfect success of any one or more individuals who will be guided by his experience.

ESTATES MEASURED, MAPPED, VALUED, LEVELLED, and LAID OUT for DRAINAGE and IMPROVEMENT.

UNDERGROUND WORKINGS MEASURED and MAPPED, and the MINERALS COMPUTED and VALUED with the nicest care and accuracy.

ESTIMATES PREPARED of the COST of OPENING-UP COLLIERIES, &c.

Every thing done on the very lowest terms.

Mr. Todd has several COAL-FIELDS TO LET, ON LEASE or SALE, at very moderate royalties or terms.—OFFICES, BRECON-ROAD, ABERGAVENNY.

### A STURIAN MINING COMPANY.—The board of directors

herby give Notice, that they have made a further CALL of ONE POUND per share upon the shares in the capital stock of this company, and that each call is PAYABLE at the London and County Bank, Lombard-street, on or before the 31st day of November next.

By order of the board, K. HACKENIE, Secretary.

Offices of the Company, No. 9, Austin Friars, Oct. 30, 1848.

### PENNANT AND CRAIGWEN CONSOLIDATED LEAD

MINING COMPANY.—Notice is hereby given, that the COMPANIES heretofore known as the PENNANT LEAD and COPPER MINING COMPANY, and the CRAIGWEN LEAD MINES COMPANY, are now AMALGAMATED, under the above denomination.—The Cost-book, under the amalgamation, lies for signature at the offices of the company, 57, Threadneedle-street, where prospectuses, and every information, may be obtained.—Oct. 9, 1848.

### PENNANT AND CRAIGWEN CONSOLIDATED LEAD

MINING COMPANY.—Notice is hereby given, that the directors are ready to RECEIVE TENDERS for the WORKING, either on tribute or by contract, of a valuable DEPOSIT of IRON PYRITES, wholly free from arsenic, and also of UMBER, of the finest description and colour; also to supply large or small quantities of both articles.

Specimens may be seen at the offices, 57, Threadneedle-street; or at the wharf, 82, High-street, Wapping.—Oct. 9, 1848.



## THE IRON MANUFACTURE OF SOUTH WALES.\*

[Continued from last week's Mining Journal.]

With the hammer commences that division of the works called the *forge*, the more interesting because the processes are there carried on under the eye of the spectator, and not, as before, in a close furnace. From the hammer the bloom is conveyed, still in a red-hot state, to the rolling-mill.

The rolling-mill is composed of two strong heavy parallel rollers of cast-iron, cast with great care under a weight that ensures solidity, case-hardened, and turned truly cylindrical in a lathe. These, placed at a certain distance apart, are made by machinery to revolve each upon its axis, but in opposite directions, so that their tendency, when in motion, is to draw in any body presented to them on the one side, and having compressed it, to force it out again upon the other. A rolling-mill is, in fact, a kind of press, and one mill differs from another in the size and strength of its "rolls," and in the pattern of certain grooves cut upon their circumference, by means of which the bar is reduced to the required figure.

The operation of rolling is very curious. A man standing on the entering side of the mill takes a bloom up with a pair of large pincers, and applies its end to the rolls. It is drawn in, considerably elongated under the pressure, and discharged on the other side. A boy there receives it, passes it loosely over the upper roll, and pushes it back to the man. This process is continually repeated, each time with an elongated bar, and through a smaller opening. It requires some nicety on the part of the man to direct the end of a long bar to the right point, and some presence of mind in the boy to receive the same bar when it comes out waving like a serpent, and hissing red-hot from the wet rolls. The "bloom" leaves the mill as a bar about 15 ft. long, and 3 in. broad by 1 in. thick. This bar is immediately placed under a pair of shears, and cut up into short lengths, which being stacked upon a wheelbarrow are trundled off, still in a hot state, to the "baling-furnace," as "puddle-bars," or "No. 1 bar-iron."

A "puddle-bar" is a rough coarse bar of malleable iron, neither very dense nor very ductile, nor as yet so well suited as it is about to become to any of the ordinary uses of wrought-iron. The duty of the men at the puddling-furnace and rolling-mill requires considerable skill, and the wages of this class of persons about Merthyr were, in 1845, as high as from 10l. to 18l. per month.

The baling-furnace is of the reverberatory order, and very much resembles that used in puddling. In it the metal is raised to a second heat, preparatory to a second rolling. Five or six of the short "puddle-bars" are piled flat upon each other, upon a sort of long shovel. The "baler" then slides them into the furnace, as a baker his bread into the oven; and, finally, as each pile attains a cohering or welding heat, he withdraws it and passes it off to the mill, where it is converted into a smooth well-compressed bar, of the required dimensions. The bar is next carried to the circular saw, to have the rough or "scalloped" ends cut off, and then laid upon an iron floor to be straightened, which, in the case of railway bars, is a delicate process. The bar is then weighed, and having received from a punch the maker's mark, it is ready to pass into the market as "No. 2 bar-iron," or "merchant bars." The loss upon this second heating and rolling is estimated at about 10 per cent.

No. 2 bar, though sufficiently good for general purposes, is yet capable of being improved in the prime qualities of strength and malleability, by a repetition of the processes of cutting up, heating, and rolling—care being taken not to destroy its texture by "burning" or overheating it, and not to roll it before its heat is sufficient to cause the layers of the pile to cohere. After a second and third repetition of these processes, the iron receives the name of No. 3, or "best bar," this being the best quality of iron usually manufactured in South Wales. The loss upon these final processes may be from 8 to 10 per cent. Cable-iron, nail and wire rod, boiler-plate, and iron for similar purposes, is thus repeatedly heated and drawn out. What is called "scrap-iron" is composed of old nails, saucers, and "scraps," and odds and ends of metal. It is for this reason that scrap iron is of the very best quality, and is much employed for axles and the more important parts of locomotive engines. Scrap iron is not manufactured in Wales.

It will be evident, from the manner in which the parts composing a bar of rolled iron have been described and arranged, that its structure will somewhat resemble that of the grain of wood, and a good smith, like a good joiner, will always work up his material with reference to this grain, or, in the phrase of the smithy, "according to the way of the pile."

The waste incurred during the several stages of the manufacture has already been stated. In round numbers, 100 parts of raw mine yield about 33 parts of pig-iron, and 20 to 25 of best bar-iron. As to the whole material employed, it may be assumed that to produce 1 ton of bar, there are required, of coal 6 tons; raw mine, 3½ flux, 1=10½ tons; or, to produce 1 ton of pig, about 10½ tons of material.

Upon this assumption, and supposing each furnace to yield 10 tons of pig in 24 hours, there will be 90 tons of material to be accounted for, or, deducting the metal, 80 tons. Of this only about two-thirds flow away in cinder, so that the other third, in weight equal to about 26 tons, must pass off by the chimney. The quantity of water used in an iron-works is very considerable. The steam-engines and boilers, and the contact with the hot metal of the refinery, dissipate very much, and a perpetual supply is needed at the blowing tubes, in the forges, and in other parts of the work, to preserve the iron casing and implements from being burnt, and to trickle in a perpetual rill over the rolling-mills and similar machinery. Water is also employed as a convenient counterpoise to raise materials from the bottom to the top of the blast-furnaces. To meet these demands every square yard of the neighbouring mountains is drained carefully, and the water collected in immense ponds and reservoirs. In summer these ponds are occasionally exhausted, to the very serious injury of the manufacture. Upon one occasion, near Merthyr, so scarce and so valuable was water, as compared with human labour, that a number of workpeople were employed to ascend the furnace by ladders, and to perform the office of the water, by descending in the balance bucket as a counterpoise to the ascending materials. Space does not permit us to dwell upon the necessary parts of an iron-works; those who wish to follow out the subject cannot do better than visit the Ystalyfera Works, above Swansea, or those of Cyfarthfa, near Merthyr, the best ordered works on a large scale in Wales, and into which strangers are admitted. Before concluding this part of the subject, it will be proper to add something concerning the "hot-blast."

It has been said that the quantity of air forced into a blast-furnace by the cold-blast is about 88 tons in the 12 hours. Now, it is a well-known fact, that atmospheric air, below the temperature of 1000° Fahrenheit, does not support combustion; and, although it is also true that the greater the supply of air the greater will be the quantity of fuel consumed, this is only because the air in the first place gains the necessary temperature at the expense of the burning body upon which it is projected. Here, then, during a period of 12 hours, in which, perhaps, 30 to 35 tons of cold material are dropped in from above, almost three times that quantity of cold air is forced in from below, and into that part of the furnace in which intensity of heat is of the greatest possible importance. It is said that an accident suggested to Mr. Neilson, the manager of the Clyde Works, the idea of obviating this inconvenience, by the injection into the furnace of a blast of air previously heated to a temperature as high as could economically be obtained. It is unnecessary here to enter into the manner in which this arrangement was effected, but the result has proved the justice of the experiment in the saving of fuel that has accrued, although it has been a question whether the quality of the metal be not injured. In the Clyde Works, according to M. Dufrenoy's report, 1 ton of metal was reduced by the cold-blast from 7 tons 17 cwt. of fuel, whereas the same fuel, under a blast heated to 619° Fahr., produced 2 tons 10 cwt. of metal, including the fuel necessary to heat the air; or, in other words, gave a saving of nearly 70 per cent. upon fuel. The introduction of the hot-blast was, in fact, the salvation of the Scotch iron trade, which it immediately raised from a most depressed to a flourishing condition. The hot-blast was first introduced into Wales at the Dowlais Works, and the translation of M. Dufrenoy's report, with the etchings which accompany it, is understood to have proceeded from the lads there, no less accomplished in the use of the pen than of the hammer; but though successful in Scotland, it is said that recent experience has shown the saving upon the smelting of the Welsh ores to be much less considerable; and either from this or some other cause, certain it is that the hot-blast has not been received into general use in Wales. Recently, at the Ystalyfera Works above Swansea, an attempt has been made by Mr. Budd to economise fuel, by conducting the heated air and gaseous products from the upper part of the blast-furnace to the steam-boilers of the blowing-engine, and so as to heat the air forming the blast. Mr. Budd exhibited his works to the members of the British Association at Swansea, and read an interesting paper explanatory of the process, whence it appeared that upon one furnace, and with one boiler alone, a saving was effected of 350l. per annum. The object is

one of immense importance, as the present process is wasteful in the extreme, and the present and probable future state of the trade are such as to require much attention to economy.

Mr. Scrivenor's book contains a correct and succinct general account of the iron manufactures of Great Britain, but a history of the Welsh manufacture is still a work to be desired, and the materials for its composition are tolerably abundant, especially since the completion of the Ordnance Geological Survey or Glamorgan, under Sir H. De la Beche. The general manufacture has not wanted its historians, from the days of Pliny down to Mr. Scrivenor. Tubal Cain, "the instructor of every artificer in brass and iron," is without doubt the earliest ironmaster on record; and Joshua Sylvester has favoured the world with an account of his iron-works.

"While through a forest Tubal, with a yew  
And ready quiver did a boar pursue,  
A burning mountain from his fiery vein,  
An iron river rolls along the plain.  
The witty huntsman, musing, thither hies,  
And of the wonder deeply did devise.  
And first, perceiving that the scalding metal  
Becoming hard, in any shape would settle,  
And grow so hard that his sharpened side  
The fiercest substance he would soon divide;  
He casts an hundred plots, and ere he parts  
He moulds the groundwork of an hundred arts."

Og, the King of Basan, *ultimus gigantum*, had, we are told, an iron bedstead, 9 cubits long by 4 broad; but neither in this case nor the *ferrei Eumenidum thalami* have commentators volunteered any further information. These were no doubt both of charcoal iron. The ancients fabled iron to have been shown to man on Mount Ida by the Mother of the Gods. The invention of hammer, anvil, and tongs, the implements necessary for working the metal, were ascribed to Vulcan. Pliny is particularly facetious in his praise and dispraise of iron, and happy in the kindred spirit of Holland, his translator. "Herein," says he, "appeareth the goodness of Nature, that this metal, working such mischief as it doth, should be revenged of itself, and receive condign punishment by its own rust."

[To be continued in next week's Mining Journal.]

## BEAUREGARD'S PATENT STEAM-ENGINE.

[From the *Mechanics' Magazine*.]

[An English patent was granted on the 11th July last, to M. Beauregard, "for improvements in generating steam, and in the means of obtaining power from steam-engines." The specification will not, probably, be enrolled before the 11th January, 1849; but in the meantime we translate from *La Presse* the following account of the invention.]

The spheroidal state which drops of water assume when placed upon a heated metallic surface, is a fact now well known. Overlooked, or, at least, regarded as a matter of small moment, by the philosophers of the last century, it becomes suddenly in the hands of M. Boutigny, a circumstance of immense importance; gives birth to experiments the most singular, the most astonishing, and the most incredible of modern times; raises up against the admitted theories of heat insurmountable objections, and disconcerts the most advanced science; accumulates the elements of a new theory; furnishes the only reasonable explanation of those unforeseen explosions of steam-boilers which occasionally spread terror far and wide; and, lastly, promises to give, in the bold imagination of its author, a key to the impenetrable mystery of the formation of worlds.

We will not undertake, at present, to describe all these marvels; we will not explain to our readers how M. Boutigny has been able to make ice in the burning bosom of a platinum crucible, heated to white heat; how, going yet further, the illustrious Faraday, following in the steps of the humble apothecary of Evreux, has succeeded, by the *tours de main* of his prodigious art, in fusing mercury in this same centre of heat, the most intense ever known. We will not narrate how we saw an enormous sphere of incandescent silver preserve for a long time its brightness and great heat in the bosom of a mass of water, which separated respectfully therefrom, and served it as a protecting envelope from cold. We will not enumerate, either, the beautiful and numerous laws which years of study and profound research have revealed to M. Boutigny, and which he has clearly formulated. We desire only to fix the attention of our readers on the following remarkable facts:—

1. Water projected in small quantities upon an incandescent surface does not wet it, does not touch it, is not spontaneously evaporated; but, falling back on itself, as it were, assumes a globular, or what M. Boutigny terms, a spheroidal state, remains suspended at a short distance above, in the incandescent surface, and is slowly reduced to steam, 50 times slower than by boiling.

2. All these phenomena occur as soon as the temperature of the surface of the water reaches 200° (centigrade), and lasts until it descends below 142° (centigrade); the water then wets the surface, and is suddenly and spontaneously reduced to vapour, with as much rapidity and abundance as gunpowder when ignited. For all other liquids, the necessary degree of temperature for the production of this phenomenon is as much lower as the boiling of the liquid is above that of water.

3. Water in the spheroidal state, and then even when in presence of an incandescent surface, does not attain 100° (centigrade), or the boiling point, but invariably remains at about 96°.

Such, in a few words, are the fundamental facts demonstrated by M. Boutigny, and which, admirably comprehended by our young engineer (M. Testud de Beauregard), have led him to his present brilliant discovery. We will first faithfully describe the admirable machine which we saw at work yesterday, and afterwards its numerous advantages.

Let the reader place himself, in fancy, in front of a kitchen stove. On the right is a generator, a kind of Papin's inextinguishable boiler, plunged in a *balneum marie*, which is filled, not with water, but with molten lead, at a temperature of about 300° (centigrade). The bottom of the generator is of platinum, and so moulded as to present a series of hollow hemispheres. A small feed-pump is placed behind, about the centre of the stove, which discharges at each motion of the piston a small quantity of water (say half a gramme for a machine of two-horse power) into the cavities of the hemispheres; the water passes into the spheroidal state, and thence into that of steam. The steam disengaged from the water at 96° 5 partsakes at its generation of the enormous temperature of the generator. The sudden elevation of temperature, produced by itself, without absorption of latent heat, compensates a hundred-fold for the slowness of its generation by a considerable increase of tension. A safety-valve, placed in the centre of the generator, gives free passage to the surplus steam. We shall see further on, that explosions are theoretically and practically impossible.

A few days longer, and a stationary steam-engine of 10-horse power, fitted with this generator, will be at work in one of the largest foundries in Belgium. A locomotive on the same principle is also in progress of construction; and, by the care of Capt. Chamier, a marine engine of 400-horse power will be fitted to one of the largest of the ocean steamers.

To return to our description, as the steam fills the spheroidal generator, it is conveyed by a steam-pipe under the piston of an oscillating cylinder. But instead of allowing the steam to escape into the air after the piston has performed its stroke, and as is usual in high-pressure engines, M. Beauregard causes it to pass through a worm, enveloped in wet cloth, in which it is imperfectly condensed, after which it is brought, by a new method, into a state of perfect and absolute condensation. Against the back part of the furnace there is placed a cylinder in which a vacuum is created, once for all, in the following manner:—The cylinder is closed by a stopper terminating in a metal rod; this rod is dipped in alcohol, then ignited, and plunged into the cylinder, whence the azote of the air is allowed to escape by a cock, which is then closed, and a vacuum thus established. The atmospheric pressure upon the stopper keeps the opening tightly closed, and the vacuum, which costs nothing, is permanently maintained, for the following reasons:—The steam from the hygrometric water which escaped from condensation in the worm is conducted towards the cylinder by a pipe, but through a second cylinder filled with chloride of calcium, which substance retains it, and does not allow of its entry into the first cylinder, the purpose of the vacuum therein being to create the necessary draft.

From the foregoing description, it will be seen that the steam is perfectly condensed; and there is nothing, absolutely nothing, to prevent the fresh emission of steam, and fresh stroke of the piston, &c.

Ah! if old Newcomen were living, of those grand ideas on the subject of condensation this is but the realisation, he would laugh in his sleeve (*rirait dans sa barbe*), would glance triumphantly at the Watts and the Woolfs—and chaunt a psalm of victory.

And yet this is not all; there was yet another difficulty to surmount—another loss to be prevented. The steam is only condensed in the worm on condition of vaporising without a quantity of water equal to that resulting from the condensation of the steam. So that what is gained on one side, is lost upon the other. To utilise this steam, M. Beauregard brings it, by means of a draft or current of air, into the furnace of the generator, where the heat decomposes and transforms it into hydrogen and carbonic oxide, two combustible gases which, in burning, transform themselves, so to speak, first into heat, then into vapour, and ultimately into motive power. The loss no longer exists, or is considerably diminished, and the machine is in its entirety as perfect as can be any work of man.

The following are the chief characteristics of this machine:—

1. The water which falls in small quantities into the hemispherical cavities of the generator passes into the spheroidal state, and then slowly into steam of a high temperature, which slowness of generation is amply compensated for by an excess of elastic force, which will be sufficient for the working of the most powerful engines.

2. The steam thus generated passes under the piston and forces it up; after the stroke is made, the piston, by its descent, expels the steam into a worm, where it is partly condensed by contact with a refrigerating surface.

3. What remains of hygrometric steam is forcibly drawn towards the vacuum cylinder, and absorbed half-way by the chloride of calcium (which may be

revivified by the simple and costless proceeding of exposing it to the heat of the furnace for a sufficient length of time).

4. The steam generated on the exterior surface of the worm is forcibly drawn into the furnace which it serves to feed. The circle of operation is then complete.

The only actual loss is the heat radiated by the sides of the furnace, which M. Beauregard collects, by a combination of reflecting surfaces, to wherever it may be useful. The admirable machine, which we saw at work for an hour, scarcely occupied the space of half a metre cube, while the steam generator, which in ordinary machines would require 1800 decimetres, occupied a space 800 times less, and yet the power, as calculated by the inventor, was 2-horse power, and the pressure (tension) of the steam capable of being raised, without the shadow of danger, from one to five or six atmospheres. These astonishing results were obtained with a minimum quantity of coal, and all those present at the experiment admitted that the results were quite at variance with all old theories and axioms.

In conclusion, we will terminate this long article by a brief notice of the incontestable advantages of this machine.

1. In the old engine there is an enormous radiating surface, and consequently an immense loss of heat. In the new one this surface is reduced in the proportion of 1 to 100; the furnace is small, and loss of heat insensible.

2. In the old engine the steam is generated at 120° (at sea 106°) at a very feeble pressure, at the most one atmosphere, and capable of dynamic effect to the extent of about 3. In the new one the steam is generated at 96° 5, its pressure is 200 atmospheres, and without danger, and the dynamic effect is at least 14.

3. In old low-pressure engines the condensation was incomplete; a considerable portion of its power was employed to overcome the resistance of the used steam. In the new one the condensation is nearly absolute, and the maximum of useful effect constantly obtained.

4. In the old engines, the feed-water is charged with salts. The condensation necessitates the employment of an immense quantity of water, so much so, that at sea they are often obliged to blow off, with loss, water at 100°, because it is too saturated with salts. In the new one, the generator is fed with distilled water. The condensation is effected without any additional supply of water. There is never any necessity to renew the water which, running through the different parts of the machine, gives life to it, because this water, alternately vaporised and condensed, reappears of itself, abundant and pure.

5. In the old engine, loss of time through stoppages is loss of money. The locomotives are often obliged to blow off the steam which costs much to generate, but which they could no longer contain without danger. In the new one, there is never a mass of water heated a long time before hand, no tempestuous production or accumulation of steam, no fuel vainly consumed in anticipation of a journey; it is necessary also to maintain a small quantity of lead in a fluid state.

## NEW PATENTS.

A. V. Newton, Chancery-lane, mechanical draughtsman, for certain improvements in the manufacture of steel.

C. W. Kesselmeier, Manchester, warehouseman, and T. Melldow, Oldham, in the same country, for certain improvements in the manufacture of velvets, velveteens, and other similar fabrics.

R. T. Pattison, Glasgow, Scotland, printer, for an improved preparation or material for fixing paint or pigment colours on cotton, linen, woollen, silk, and other woven fabrics.

J. Hart, Bermondsey-square, for improvements in machinery for manufacturing bricks and tiles, parts of which machinery are applicable to moulding other substances.

W. Weld, Manchester, mechanical draughtsman, for certain improvements in machinery, for spinning cotton and other fibrous substances.

R. Bright, Bruton-street, Middlesex, lamp manufacturer, for improvements in lamps, wicks, and covers for vessels for holding oil and other fluids.

R. W. Winfield, Birmingham, manufacturer, for certain improvements in the construction and manufacture of metallic bedsteads, couches, and sofas.

J. Harris, Richard's-terrace, Rotherhithe, Surrey, engineer, for a mode or modes of founding type, and of casting in metal, plaster, and certain materials.

J. Robertson, Liverpool, cooper, for a mode or modes of consuming smoke and other gaseous products arising from fuel and other substances.

R. A. Brooman, Fleet-street, London, gentleman, for certain improvements in the manufacture of hinges, and the machinery or apparatus used therein. (Communication.)

W. B. Tibbitts, Braunston, Northampton, gentleman, for improvements in obtaining, applying, and controlling motive power, parts of which improvements are applicable to the raising and forcing of liquids.

F. G. Spilisbury, St. John's Wood, for improvements in paints and pigments.

G. A. Biddle, Ipswich, engineer, for improvements applicable to gas-burners.

M. Jacobs, Spitalfields, Middlesex, gentleman, for certain improvements in the manufacture, stamping, and treatment generally of woven fabrics of all kinds.

T. J. Knowles, Esq., Heyham Tower, near Lancaster, for improvements in the application, removal, and compression of atmospheric air.

## DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

R. Walker, Birmingham, fastening for dress.

W. Bowler, Manchester, ventilation hat tip.

W. E. Jenkins, Broad-street, Golden-square, preserver envelope.

W. Burbury, Leamington, safety carriage, to prevent horses from falling.

R. E. Marshall, Cheltenham, clip and file for holding letters, papers, and pamphlets.

J. Mather, Newcastle-on-Tyne, stove. —*Mechanics' Magazine*.

IRON MANUFACTURE IN AMERICA.—A correspondent of the *Birmingham Journal*, says:—

"Concerning the iron trade I have nothing of importance to communicate: it may be as well, however, to allude to a new method of puddling or refining iron by gas fires, which is receiving the attention of ironmasters. I presume it will be nothing new to English manufacturers. It originated in Germany in 1841, at an ironwork belonging to the Government of Wurtemberg, well known for the scientific and perfect way in which it is carried out, and by several valuable improvements which originated there at different times. The method is principally applicable to the process of puddling, refining, welding iron or copper; but it has likewise been attempted to apply it to the heating of steam-boilers with variable success. The principle of it is, to create in a separate furnace, called a gas generator, by a slow combustion or distillation of fuel, the inflammable gases, principally oxide of carbon and carburetted hydrogen, and to lead them where the heat is wanted, combining them at their passage into the operating furnace with a blast of hot air, by which they become ignited, and their combustion produces the required heat. According to the heat to which the gases are brought in their formation, which can vary from 200° to 400° C, and that of the hot air and its pressure, a greater or lesser heat can be obtained, and is perfectly at the command of the operator. An explanation of the process would be too long for the limits of a letter."

**SUPPLY OF WATER FROM THE NEW RED SANDSTONE.**—We learn, from the *Manchester Guardian*, that the mayor of that town and several of the council, on the invitation of the directors of the Manchester and Salford Water-works Company, proceeded last week to the works of the company at Gorton, to witness the success with which a shaft had been sunk into the new red sandstone. After inspecting the reservoir, they visited the chief object of attraction—the splendid new and powerful Cornish engine, which has just been put down by the company, and which was set to work to exhibit its great capabilities in pumping up a vast volume of the water obtained by sinking in the red sandstone to a depth of 70 yards. The water is stored by means of galleries from the main shaft, which serve as internal and subterranean reservoirs. The volume of water thus raised by this engine is estimated to be equal to about two millions of gallons per day, a quantity considerably exceeding the expectations of the company themselves.

**BLAST-FURNACE—REMARKABLE ACCIDENT.**—At one of our blast-furnaces, blown with heated air, while the blast was shut off for a few minutes, as is usual after casting, an explosion took place inside the pipes, which, from its effects, we consider extraordinary. In the pipes immediately outside one of the stoves for heating the blast, and at the end next the furnace, is a stop-valve—a circular disc of cast-iron, 1½ in. thick, and 12 in. diameter, cutting off the connection between a line of cold-blast pipes and the hot-air pipes. This valve, by the force of the explosion, was literally shattered. Several of the joints in the line of cold-blast pipes, with which the breaking of this valve opened a connection, were blown out, and another stop-valve, in the large main, at a distance of 20 yards, was also broken in pieces; there the explosive mixture escaped in flame at the waste. The furnace, at the same time, belched out a great quantity of the materials in front. Will any of your scientific correspondents have the kindness to explain the nature of the explosive compound likely to be formed in the hot-air pipes? It appears to have been generated in the furnace, and fired by the pipes of the stove being red-hot, which they very soon become (if the furnace is at all careless) when the blast is not passing through them.—AN OLD SUBSCRIBER: *Merthyr Tydfil, Oct. 31.—Mech. Mag.*

**EXTRAORDINARY BLOCK OF GRANITE.**—A block of granite, containing upwards of 12,000 cubic feet of stone, and exceeding in weight 850 tons, was dislodged on Tuesday, at the granite quarries of Messrs. Freeman and Co., at Maen. A hole 9 feet deep having been bored, 1½ lb. of powder, with which it was charged, produced a slight crack; into this was thrown another charge of 35 lb., which, on explosion, threw out this immense block several yards from its bed. Considering the largeness of it comparatively how short a time they are these quarries, it is astonishing in how comparatively a short time they are prepared for exportation. A few days since, another large rock was unscrewed, measuring when wrought 150 feet, and in weight 11 tons; the preparing and working of which was performed by a couple of men in a week. The removal of this stone from the quarry attracted the attendance of a great number of visitors, whose remembrance of the difficulties experienced a few years ago in the transit of such stones contrasted strangely with the ease and expedition in the present day—not the slightest let or hindrance occurring from the load-bearing to its deposit on the quay. The stone at these quarries is of admirable quality and of very great extent, the present slope being 50 feet, and as it proceeds a much greater depth will be attained.—*Cornwall Gazette*.

**A WOUND IN THE LEG CURED BY HOLLOWAY'S OINTMENT AND PILLS.**—Extract of a letter from Mr. Edward Nicholls, 34, Rose-street, Covent-garden:—"To Professor Holloway.—Sir,—For years I had a bad leg, and about four years ago an abscess formed, which the treatment adopted by several medical men failed to heal, and I despaired of a cure; lately my friends recommended your medicines, and by their use alone I soon found a great improvement, and in a few weeks my leg was perfectly cured. I can now walk 10 miles a day with as great ease as when I was 20 years old, and now I am 50."—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand.



## IMPROVED AXLE BOXES.

[Specification of patent granted to William John Normanville, of Park Village, Middlesex, for certain improvements in railway or other carriages, partly consisting of new modes of constructing the axle boxes and journals of wheels; also, an improved method of lubricating the axle journals, or other portions of machinery, by the introduction of aqueous alkaline, oleaginous or saponaceous solutions.]

Before entering into the description of this invention, the patentee states, he would premise that very great labour and expense is at present incurred by railway companies, in lifting railway carriages for the purpose of removing worn-out brasses, and substituting others; much of this wearing out is consequent upon the introduction, during the running of the trains, of extraneous substances—dirt, grit, &c.—into the axle boxes between the rubbing surfaces of the journals and brasses, owing to the defenceless or open state of the back of the axle boxes, which dirt, or grit, acting upon such surfaces, cuts, or otherwise injures them, so as to render the brasses useless, overheating the parts, and otherwise deteriorating the property. Thus it is a frequent occurrence for a carriage which is either new or just repaired, and ought to run many thousands of miles, to be returned to the shop after its first journey for repairs, owing to the before-mentioned causes. The first part of this invention has reference to the making of axle boxes to a railway, or other carriage, an air-tight vessel, guarding the rubbing surfaces of such machinery from injury by dirt as aforesaid, and for the more effectual lubrication of such surfaces by the introduction of more suitable lubricators, which can only be effected by holding such lubricators in a vessel that is air-tight, except at the air hole in the screw, or other kind of lid, and surrounding the parts requiring lubrication. For the above purpose, as regards the axle boxes of railway carriages, there is a shield, diaphragm, or collar, of vulcanised India-rubber, gutta percha, leather, or other suitable elastic substance, either animal, vegetable, or mineral, of peculiar form, attached to the axle box at its outer edge, as hereafter described.

This shield, or diaphragm, is perforated in its centre, such perforation being cut with great care in a lathe, and to a perfectly smooth surface, to allow the passage of the journal through it, such perforation being of less diameter than the actual diameter of the journal, and by the tendency of the material of which the shield is made to collapse, pressing it so closely to the journal that an air-tight joint is maintained. The material which is considered most suitable for making the shield is vulcanised India-rubber, either usable on this journal by itself, or with metal, leather, or other collars, as hereinafter described. The diameter of the perforation in the said shield, or diaphragm, for a 4-in. axle, should be 3 in. and  $\frac{3}{4}$  in., the outer diameter of the said shield should be  $\frac{1}{2}$  in. less than the metal disc of the axle-box into which it is to fit, and it will then be found to completely fill it; after having been stretched over the axle, the shield tapers from its centre to its outer edge.

For the protection of the elastic shield, behind it is placed a thin cast-iron, or other metal shield, and secured to the axle-box by four bolts, which, being more or less tightened, presses upon the outer periphery of the elastic shield, and occasions more or less pressure, as required to maintain the joint upon the axle. In adjusting this box upon the journal, no more compression should be put upon the outer diameter of the elastic shield than is necessary to make an air-tight joint; for, should it be more than is necessary for the above purpose, it will cause so great a pressure upon the axle, that there would be considerable risk of the shield firing when the axle requires motion; and, before it could become properly lubricated, to prevent an accident of the above nature, four leather washers are introduced, through which the said bolts pass between the metal shield and the box, such washers being of the proper thickness to prevent the bolts being over-tightened. After a period, in which that portion of the elastic shield in contact with the surface of the axle has worn so much as to no longer maintain a perfect joint, these washers may be thinned, so as to allow the bolts to be tightened, by which operation the perforation in the elastic shield will contract, and again make an air-tight joint round the axle. Three modes of using the elastic shield are adopted—firstly, where the surface of the perforation forms the joint round the axle; secondly, where a metal collar is used; thirdly, where a leather collar is used.

The first mode has been partially explained; it consists simply of an elastic shield, passed over the journal of the axle, and secured in its position by the means already described; when, by continued wear, the air-tight joint can be no longer maintained, a loose ring of India-rubber, of the same diameter as the axle, and about quarter of an inch in thickness, may be placed upon the axle; the original shield, whose orifice has become enlarged by wear, is then stretched upon this ring, and, by its contractile force, claps it so tightly that a perfect joint is maintained between the two surfaces of India-rubber; while the axle revolves within the inner or loose ring, and the operation of tightening, by the means of the four bolts, is repeated as required.

The second modification of this arrangement consists in the introduction of a metal ring, in contact with the axle, using the contractile force of the India-rubber shield to keep the ring in close contact with the polished axle—this ring should be in four parts, with the joints so arranged as to intercept the passage of the grease, and allow the ports to close; as the surface of the ring wears, it will be obvious that this arrangement increases the expense.

The third modification of arrangement of the elastic shield and its appurtenances, and to which, from its easy application, efficiency, and cheapness, preference is given, is the introduction of a leather ring round the axle, using the contractile force of the India-rubber, as before described, to maintain a close pressure upon the axle.

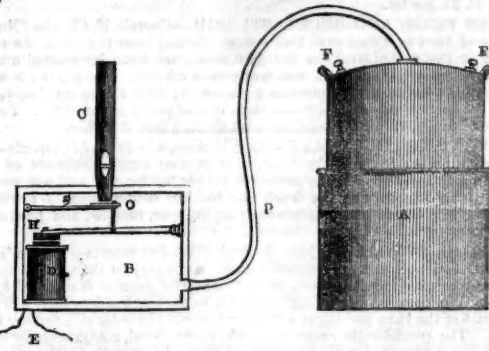
These axle-boxes should be filled with a saponaceous grease in a semi-fluid state, so that it may flow towards the shield, or collar, and lubricate it without delay, because the India-rubber, or other material, being in close contact with, and grasping the axle, would wear, and become injured, should the rubbing surfaces be allowed to revolve without proper lubrication. It is not intended that free oils should be used in connection with this improved axle-box, because they would be absorbed by the India-rubber, and so injure it; while grease in ordinary use, which, however, must be in a semi-fluid state, as before-mentioned, may be used without injury to the elastic shield, even should the heat generated by the friction of the journal arrive at boiling point. The top of the axle-box is of a circular form, with a lid furnished with a small air-hole screwed, or hinged, thereon, and so effectually enclosing the box. The grease is not introduced through the aperture whenever required; this can be ascertained by touching the axle-boxes at the stations appointed, when, should undue heat be apparent, a small quantity of grease may be added. The mode of applying this box to the journal is as follows:—First pass on to the axle the cast-iron shield, with the four bolts in it, and let it rest against the nave of the wheel; then pass on the vulcanised India-rubber shield, stretching it over the shoulder of the journal, previously well greasing the surface of the axle and the surface of India-rubber in contact with it; a small notch should be cut in the edge of the India-rubber, on the inside towards the axle-box, and about half-way across, to facilitate the passage of the lubricator under it; then bring the axle-box to the journal, and when the brass is bedded in its place on the journal, press the India-rubber shield into the disc, and bring the cast-iron shield up to it, inserting the four bolts into the holes prepared for them, when they may be screwed up as far as the leather washers previously described will allow; the springs are then attached in the usual manner, and the box filled and screwed down for use. It is unnecessary for me to describe the slight variation in this arrangement when the brass or leather collars are used; as every workman will be aware that it will not then be necessary to cut the groove in the elastic shield, and that, in using these collars, the elastic shield does not touch the journal, but grasps the collars, as hereinbefore described. He now proceeds to describe another modification of the above arrangements. It will be observed in this case that the vulcanised India-rubber is still used, as a spring for maintaining an air-tight joint between the axle-box, substituting its expansive for its contractile force. Make the India-rubber, in this instance, a fixture on the axle. The India-rubber collar must be  $\frac{1}{4}$ ths of an inch wider than the actual space it is intended to occupy, and be compressed into the portion shown; and, by its expansive force, press tightly on one side against the nave of the wheel; and on the other press a brass washer against a polished plate, fastened by four screws to the axle-box, and forming the end of it—the India-rubber collar filling up the space between the two; and, being a fixture upon the axle, necessarily revolves with it, and causes the brass washer to rub upon the polished surfaces of the plate forming the end of the axle-box, and effectually closes it. At the back of the brass washer, I fix two small studs, or pins, which press into the India-rubber, and cause the brass washer to revolve with it. The other portions of the axle-box would remain as previously described. It is intended to work this modification of the arrangements with the grease in ordinary use upon railways, and commonly called "Booth's grease," which answers the purpose exceedingly well. The mode of applying this box to the

journal is exceedingly simple, as it lifts on and off in one piece; previous to applying it to the journal, it requires to be filled with the grease, merely allowing room for the journal in the centre; it is then lifted on to the journal, and pressed forward against the brass washer, when the operation is complete.

The patentee wishes it to be understood, that although he has referred to the drawings annexed to the specification, in order to illustrate his invention, he does not limit, or confine, himself to the precise details of the methods described of making and fixing the elastic shield, or the collars, described, or to the precise size thereof, or to any particular size, or to the thickness of the elastic shield, or collars, or rings, or to the material of which such shield, collars, or rings, or springs, are made, as such details must be varied to suit journals of different sizes, or for other purposes, or portions, of machinery to which these arrangements are applicable, and that he does not claim the separate use of any of the materials, or parts, above-mentioned, and referred to, except in as far as they may be employed in combination, and for the purposes of the said invention, which he declares to consist in—1. The peculiar combination of various elastic and other materials, as hereinbefore described, with the axle-box and journal, for the purpose of rendering the lubrication of the journals of railway wheels, and other moving parts of machinery, more perfect.—2. The arrangements hereinbefore described for inclosing the lubricator within a vessel which shall retain it, and exclude the dirt.

Patent-office and Designs Registry, 210, Strand, Nov. 1.

## IMPROVED TELEGRAPH ALARM SIGNAL.



We are glad to be the first to announce that Mr. N. Holmes, of the General Telegraph Company, has contrived the following simple and beautiful application of a whistle, or other wind-pipe, most successfully to the calling, and giving signals at a distant station, by means of electricity, in connection with the telegraph. This invention, from its simplicity, efficacy, and inexpensive cost, must ultimately, in a great measure, supersede that of the old clock-work alarm, so liable to casualties in the disarrangement of its machinery, and which has hitherto been always considered the least perfect portion of the telegraph—delays being not unfrequently from non-performance of that part of the apparatus, on which so much reliance is usually placed. This, in the plan adopted by Mr. Holmes, cannot be so often deranged—all clock-work movement being dispensed with—the power required to produce the sound being the direct action of the voltaic magnet upon the armature lever of the whistle. In stations where many instruments are required to be placed side by side, one of these apparatus may, by a little modification, be made subservient to call the attention to any one of the instruments—showing that a manifest saving over the old plan of bells may be obtained, both in security and economy, and, at the same time, producing a signal more in character with railway requirements.

The annexed wood-cut will serve to illustrate to our readers the manner in which Mr. Holmes has effected his operations:—A is a galvanised sheet-iron air reservoir, which may be placed in any part of the office, out of the way, from the top of which issues one end of a small pipe of gutta percha; P, the other extremity, being carried into the box, B, which is made air-tight, and placed on or near the instrument to be called. D is the voltaic magnet—the ends, E, of which form, when the whistle requires to be sounded from a distant station, a short circuit with the battery of the near instrument, causing the magnet to attract the armature, H, and open the valve, O, through which a certain portion of air is allowed to escape so long as the armature is kept down, causing the whistle, C, to be sounded. When the reservoir, A, requires replenishing, all the operator has to do is to raise the upper cylinder by the two handles, placing his thumb at the same time upon the two air valves, F, F, allowing the refilling to be made without trouble, and in a few minutes, when all is again ready for action. While writing this description, we are led to suggest the above as a most invaluable and economical mode of communication for mines and collieries, as a means of calling from the engine-house to the pit's mouth and different parts of the mine.

THE ELECTRIC TELEGRAPH IN AMERICA.—A letter from New York, dated Oct. 17, says—"The scientific world is just now much engaged in the contest among the telegraph inventors of our country. The great merit of the discovery lies at present with Mr. Morse, and the lines upon his plan are everywhere successful in the United States. This gentleman is a son of Morse, the geographer, and is by profession an historical and portrait painter, having attained great eminence in his art, and been honoured with medals in Paris. Some years ago, when crossing the Atlantic, he invented his telegraphic system, and ever since the voyage he has thought of little else. In perfecting his invention he has met with the usual difficulties of inventors, and at one time was much reduced in his circumstances by the inevitable expenses attending his experiments. He had scarcely succeeded, before there were attempts made to vary his principle, and to change the form of its application. The most serious opposition has been on the part of an American of the name of Horn. His telegraph prints the communication on slips of paper. The letters are stamped by electricity, and the connection is closed or opened by means of a keyboard. The cylinder on which the types are set revolves, however, by mechanical power. The words of Mr. Morse's patent cover every design for printing letters as well as making arbitrary characters, and it remains to be seen how far the courts will follow its intention. Mr. Bain has also his plans before the public, but as yet he has obtained no patent in this country, in consequence of Mr. Morse having entered a caveat at the patent-office. This office, established at Washington, is a great curiosity. It occupies an immense building, and its great hall, several hundred feet long, is filled with models. All strangers visiting the seat of Government examine the patent-office as a matter of course. So many great fortunes have been made by inventions in the United States, that they are a popular mode of making money. Nor do our inventors invariably belong to the mechanical class of our people. A lawyer is as likely to be an inventor as any one else. This circumstance is strikingly characteristic of our countrymen. They have a turn for almost everything, and when defeated in one design, they take up another with indomitable energy."

BROCKENDON'S PATENT INDIA-RUBBER JOINTS.—At the Institution of Mechanical Engineers, Birmingham, Mr. Cowper brought this subject forward, in a brief explanation of the application of vulcanised India-rubber to pipe joints, and their economy compared with those of lead, the cost being about one-half. Mr. Fothergill apprehended that the practical objection to the adoption of the joints would be the difficulty of repairing them.—Mr. Richards, of Worcester, said he had had more than 12 months' experience of the joints, and he could speak in confident terms of the great value of the invention. They had withstood the influences of ammonia and other gases, and did not seem to be at all affected by the changes of temperature. He considered that the repairs could be done even more easily with joints such as those than with lead, for there was no use for the shoulders with which the spigot in the drawing before them was encumbered. He intended to adopt the joints extensively.—Mr. Fothergill said that Mr. Richards's explanation had removed the objection stated. After a few other commendatory remarks, in which the value of the adoption of India-rubber was unanimously acknowledged, the chairman remarked that they seemed to be agreed as to the usefulness of these joints, their durability being the only point on which the society could not give an opinion.

The Manchester Geological Society held its annual meeting and dinner on the 26th Oct., presided over by R. Thicknesse, Esq., M.P. It was suggested during the proceedings that much useful practical information might be obtained by holding the meetings in different parts of the county, in the coal districts, instead of in Manchester only, and especially if committees were appointed to take information from practical men, many of whom might be enabled to communicate much of a useful nature, though they were unequal to writing "a paper" to be read at the meetings, or disinclined to undergo that labour.

EAST LANCAHIRE.—The directors are now prepared to contract for the extension of their line from Farington to Preston, involving the erection of another bridge across the Ribble.

## The Compendium of British Mining.

ORIGINALLY COMPILED AND PUBLISHED IN 1843.

REVISED, CORRECTED, AND ENLARGED FOR THE "MINING JOURNAL," BY J. T. WATSON, ESQ., F.G.S.

## No. VI.—THE SYSTEM OF CORNISH MINING.—(Continued.)

The "tickoting," or weekly sales of ore, form a curious feature in mining. The copper ore, on being raised from the mines and dressed, is put into heaps of several tons, and is well mixed; and a sampler, on an appointed day, fixes on a third or fourth of the dole. The parcel is divided into six doles—two of which are cut in half, and a slice taken off the sides by a shovel. After subdividing and mixing this, a sufficient quantity is put into a bag by each sampler; and this is taken as the sample of the whole. These are carried to the different assay offices, where the ore is pulverised, and an ounce (troy) assayed in a crucible, with proper fluxes; and a bead, or prill, of copper, is found among the scoria. If an ounce of ore yield one dwt. of copper, the produce of that ore will be 1 in 20, or 5 per cent., and so on. The standard of copper is the term given by the smelter to denote the price of a ton of metal in the ore, from which standard he deducts 2l. 15s. for every ton of ore, or as many as may be required, according to its produce, to give a ton of copper, and which sum is considered by the smelter as an equivalent for the returning charge, or expense, of reducing the ore to a merchantable state. The returning charge is a fixed one—being the same for poor ores as for rich ones; but, inasmuch, as it costs the smelter more to convert a ton of rich ore than a ton of poor, the standard varies with the produce, so as to equalise the matter—hence poor ores fetch a high standard, and rich ores obtain only a low one, because, in the former case, the returning charge more than covers the cost, and in the latter is not supposed to equal it. Suppose a parcel of ore makes a produce of eight and one-eighth per cent. at a standard of 80—that is, the price which the purchaser can obtain for a ton of metal—the price of a ton of that ore may be thus obtained:—

|                        |                                 |
|------------------------|---------------------------------|
| 80                     |                                 |
| $\frac{8}{8}$ produce. |                                 |
| $\frac{1}{2}$ —640     |                                 |
| 10                     |                                 |
| 100) 650 (£6.          |                                 |
| 600                    |                                 |
| / 50                   | £6 10                           |
| 20                     | 2 15 returning charge.          |
| 100) 10,00 (10s.       | £3 15 value of the ore per ton. |

Every 20s. the standard rises or falls will make a difference in the assay of 1s., or a 20th in every pennyweight, and a  $\frac{1}{4}$ d. in every grain—as, for instance, 1 dwt. 1 gr. at 95l. standard, will make the produce 4l. 15s. the dwt., and 3s. 11 $\frac{1}{2}$ d. the grain; but, if the standard be 96l., the produce will be 4l. 16s. the dwt., and 4s. the grain, deducting for returning charge. To give some idea of the profits of smelting, and the advantages taken by the smelters, who appear to enjoy an enormous and undisturbed monopoly, we are informed the expenses of returning a ton of ore into metal, does not average 1l. 5s. per ton, although they charge the miner 2l. 15s. Again, the smelter gets 21 cwts. to every ton of ore—here is 5 per cent., or 5 tons of ore given him in every 100 tons he purchases. If we suppose a parcel of ore yields 10 per cent., 10 tons of it will yield one ton of pure metal; this, for the sake of argument, we will say is worth 80l. For the ore the smelter bids 8l., deducting his 2l. 15s. returning charge—that is to say, he gets the 10 tons for 5l. 5s. per ton, or 52l. 10s. The actual cost of making this into metal, we will say is 1l. 5s. per ton, or 12l. 10s.—making the actual cost of the ton of metal, 65l., for which he gets 80l., or 15l. profit, without including the 5 per cent., before alluded to.

A fortnight's interval takes place between the assay and the ticketing, during which time the agents receive answers from their principals, as to the price to be offered. Before dinner, tickets, containing offers from the different copper companies, founded on these assays, are produced, and the highest is the purchaser.

The Cornish assayers, generally,\* have not the slightest notion of the theories of chemistry, or metallurgy, and their assays are not very accurate. Ore which, according to their assay, gives a produce of seven, will often, upon a stricter analysis, yield more, and the difference goes to swell the already enormous profits of the smelter.

The process is, to take 400 grains of the sample of ore, pound it fine, sift it, and place it in a crucible, to roast in an air-furnace, keeping the ore stirred with an iron rod. When the sulphur is considered to have been sufficiently driven off, the ore is taken from the fire, and allowed to cool gradually in the crucible; if then the upper part appears red, or brown, and the under part black, the proper roasting is supposed to have been given. A standard flux—composed of borax, 5 dwts.; lime, 1 $\frac{1}{2}$  ladleful (diameter of the ladle about  $\frac{3}{4}$  in., and depth  $\frac{1}{2}$  in.); and powdered fluor-spar, 1 ladle—is then mixed with the roasted ore, and put into a crucible—the mixture being covered with salt. It is then melted, and what is termed a *regal*, or *regule*, produced; this regule is thought good, if it will produce from 8 to 12 in 20. The grey sulphurets, the black oxide, and the carbonates, have sulphur added to them to "throw back the ores," as it is termed, as they are considered not to have enough of it for the purposes of the assay. To fine this regule, it is pounded and roasted in a crucible, until the sulphur is considered to be driven off. A flux—of nitre, 3 dwts.; red tartar, 10 dwts.; borax, 5 dwts.; and salt, 2 ladles—is then added, and salt sprinkled over the top of the mixture. Coarse copper is now obtained. If this comes out clean, the assay is put into a crucible without flux; and, when melted, the crucible is taken out of the furnace, and shaken until the surface appears blue. A refining flux is now prepared, by mixing two parts nitre and one part of white tartar in an iron mortar, and stirring the mixture with a red-hot iron, until deflagration has ceased. The flux thus prepared is powdered and sifted when cold, and five dwts. of it are added to a ladleful of salt, put with the assay into a crucible. When all is melted, the copper is poured into one mould and the slag into another; the latter is again melted with two ladles of red tartar, and the small button, or prill of copper, now found, is added to that previously obtained, and the assay is completed. To assay tin in the dry way, reduce a portion of the ore to powder, place it in a crucible, or on the slab of a muffle, and expose it to a low red-heat; if arsenic or sulphur be contained, it will thus be got rid of. The residue, when mixed with a little charcoal and linsed oil, in a well-closed crucible, is to be subjected to a bright red-heat, by which it will be reduced to the metallic state. In forming the regulus, care should be taken not to use too much nitre, as this will tend to diffuse the copper through the slag. If the regulus be soft or rough, it is not a good one, and another portion of ore may be tried; or, if the flux is red, more fresh flux may be added and repeated. If the regulus be fine, add a small quantity of nitre; if rough, a larger.

The process of smelting copper ore is too complicated and lengthy for a small work like the present, and has but little interest, except to the practical miner; however, the following very condensed account may give the reader some little idea of it.—Copper ores contain sulphur, iron, and arsenic; the sulphur and arsenic being gradually dissipated in the furnaces. It undergoes in Swansea eight processes, six of which are alternate calcinations and fusions, the former to expel the volatile matter and oxidise the metals; the fusibility being thereby increased, the earthy matter and oxides, which are specifically lighter than the metal, float on the surface, and are skimmed off in slags; the seventh process is roasting; and the last refining—thus passing through the reverberatory, calcining, melting, and refining furnaces. The first process is to calcine the ore, the heat being as great as the ore will bear without being fused or baked. When sufficiently cool to be removed, water is thrown over it, to prevent the escape of the finer particles. The calcined ore is next melted, when the earthy matter and metallic oxides, being specifically lighter, float on the surface, and are skimmed off. The metal is made to flow into a pit of water, where it becomes granulated and called *coarse metal*. If the slags contain any copper, on being broken, it is found at the bottom. The granulated metal contains about one-third of copper, composed chiefly of copper, iron, and sulphur. The coarse metal is next calcined, and after calcination, melted; with the calcined metal are melted some slags, from the last operation, which contain some oxide of copper, which becomes reduced by a portion of the sulphur, which combines with the oxygen and passes off as sulphurous acid gas, while the reduced metal combines with the sulphuretted. The slags being composed chiefly of the black oxide of iron, fuse readily, and act as solvents for earthy matter, &c. The metal, after the slag is skimmed off, is either tapped into water or into sand beds.

\* There are some skillful assayers.



## Mining Correspondence.

## ENGLISH MINES.

In the crystallized state it is called *fine metal*; in the solid form, *blue metal*, from the colour of its surface. The fine metal is next calcined, and then melted, resulting in that of the coarse metal, and the product is a coarse copper, containing from 80 to 90 per cent. of pure metal.

The next process is roasting, or oxidizing. The pigs of coarse copper from the last process are exposed to the action of the air, which draws through the furnace at a great heat. The volatile substances are expelled, and the iron, or other metals which remain, are oxidized. The pigs are covered with black blisters, and the copper is called *blistered copper*. It is porous and honey-combed, from the gas formed during the ebullition, which takes place in the sand beds, or tapping. An assay is next taken out with a small ladle, and broken in a vice; the copper in this state is termed *dry*. In the process of toughening, the surface of the metal in the furnace is first well covered with charcoal; a pole, commonly of birch, is then held in the liquid metal, which causes considerable ebullition, owing to the evolution of gaseous matter; and this operation of *poling* is continued, occasionally adding fresh charcoal, the surface may be covered until the refiner perceives, by repeated assays, the grain perfectly closed, so as to assume a silky polished appearance when half cut through and broken, and is become of a bright red colour. If it be left under the hammer, and do not crack at the edges, he is satisfied of its malleability. Copper for brass is granulated with warm water; the copper assumes a round form, and is called *bean shot*. With cold water it has a light ragged appearance, and is called *feathered shot*. The former is the state in which it is prepared for brass-wire making. It is cast for exports to the East Indies in pieces six inches long, and weighing eight ounces, called *Japan copper*. These are dropped from the moulds, immediately on becoming solid, into cold water, and by a slight oxidation, the copper acquires a rich red colour on the surface.

Tin ore, previous to its reduction, is pulverised in a stamping mill to various degrees of fineness, depending on the size of its crystallisation, and the ingredients with which it is found mixed. If it contain no volatile matter, it is seldom desiccated—on the contrary, if it does, this process is never dispensed with. The ore is reduced in a reverberatory furnace, mixed with a portion of culm. At the east end of the furnace is a *ridge*, or railed line across the floor, between which and the eastern wall is the fire; the chimney is at the west end, and its mouth about two feet above the level of the ore—so that the heat passes over the whole most intensely; as it melts, the combustible and earthy matter, being specifically lighter, floats on the surface. By introducing an iron rake, the brilliant metal momentarily meets the eye below the buoyant covering. In about six hours the metal is let out, and the floor remains covered with scoria. This matter is drawn out at the west end, and when cooled is black from the prevailing oxide of iron.

The mode of purifying tin from its alloys, differs little from that observed in refining copper. The tin melted at the different houses is cast into moulds, containing about 3 cwt., and, while in a fluid state, it receives the stamp of the particular house where it is melted, and is denominated *black tin*. The blocks are weighed, numbered, and sent to the nearest coinage town to be coined. In the coinage hall, a piece of about 3 or 4 cwt. is cut off from one of the lowest corners, in order to prove the fineness of the metal. The face of the block is then stamped with the Duchy seal, which constitutes the coinage, and is a permit for the owner to sell; and, at the same time, the corner being cut off, is an assurance that the tin has been properly examined, and merchantable.

(To be continued in next week's Mining Journal.)

## ACCIDENTS.

**Walsall.**—J. Smart was killed by a fall of earth, in Messrs. Philip Williams and Co.'s limestone pit, Birchills.

**Drifley Hill.**—E. Wood was killed by a fall of coal at Mr. Bond's Colliery, Bromley.

**Tipton.**—John Guttridge, while ascending the shaft of one of the pits belonging to Messrs. Caddick and Mason's colliery, at Tipton, received a severe compound fracture of his head, by a brick falling out of the side of the shaft: the poor fellow lies in a very precarious state.

**Dunk Colliery, Kingsnufford.**—W. Matthews was killed by the falling of a brick down a shaft, while he was ascending in a skip.

**Cosley.**—John Morris, aged 14, was burnt in the Jad Hall Colliery, on the 19th and died on the 23d Oct.—As Joseph Walters, aged 63, a butty collier, was putting a tree in a pit at the same colliery, which is the property of J. B. Whitehouse, Esq., of Cosley, a chip of the tree struck him in the eye, and injured him so seriously, that he died.

**Rusley.**—A collier, named Clark, was injured about the face and arms by the explosion of a quantity of gunpowder, which accidentally became ignited by a lighted lamp, which was forced from Clark's hand by the falling of a clod of earth, while down a pit at Messrs. Badger's colliery, at Garrett's-lane, Old Hill. He was quickly attended by Mr. W. E. Johnson, and is now going on favourably.

**Breadfield Colliery-pit Accident.**—On Saturday an accident, by which nearly 30 persons were deprived of life, was occasioned by an explosion of fire-damp, at a pit on Wynd Hill, Clifton Moor, near Walsall. More than 30 bodies were brought up the shaft in a dreadfully mangled condition, and 10 more were undiscovered, of whose existence in the pit in the morning there is the clearest evidence—viz.: the statement of the only survivor who managed to ascend the shaft, leaving below several others ready to follow him, but whom the fire-damp suffocated instantaneously. The bodies having been identified for the purpose of a coroner's inquest, were removed in carts from the spot, which presented a frightful spectacle, from the dead placed around, scorched and disfigured; the piteous cries of the wives, children, and friends of the deceased, as the blackened remains of each were brought up from the pit, the utterance of denunciation which the works themselves exhibited, and the continued fall of heavy rain and hail. The poor fellows were principally Irish Roman Catholics, and have left their families in great distress. The cause of the catastrophe is attributable to bad ventilation. This case is adverted to in another column.

**Another Victim to Unlocked Pits.**—On Friday another life was sacrificed to the disgraceful practice of allowing old unworked pits to remain without fence or other protection. The unfortunate victim, in this instance, was a labouring man, named J. Bates, who was working near an old coal-pit at Brookmoor Green, into which he fell backwards, and was killed. Of course, the formal ceremony of holding an inquest was gone through. The witnesses considered the circumstance an accident, and the jury returned a verdict to that effect. Surely parties who leave these pits uncovered are as guilty of manslaughter as the reckless driver of a railway train. One or two verdicts to that effect would have a wholesome effect on the practice. —*Birmingham Journal.*

**Dangerous Mine.**—On Monday last a collier, working in the Pentrefoel Pit, near Llanwalech, nearly met his death under the following singular circumstances:—He had brought with him a supply of food for his meals—among other things a pot of good strong tea—that famous plant "which cheers but not inebriates." In a similar pot he had with him a more dangerous companion, 1½ lb. of powder—not the tea called gunpowder—but good rock powder, used for blasting purposes. At the usual hour for the meal the canny man took up the pot and set it on the fire. It was the pot of powder, not tea. The result may easily be imagined—an explosion, which burnt the man and a boy, and five who were at the time in a shed near the works with him. Fortunately the injuries received by the sufferers, though severe, are not such as to endanger their lives—a circumstance which they owe, in great part to the shed being opened, and the roof, we believe, partly uncovered. —*Weichman.*

**Extraordinary Occurrence.**—Death of a Woman From Falling Down an Old Pit Shaft.—One of the most singularly distressing accidents which we have ever heard of occurred on the morning of Saturday last, to a woman named Ann Yates, wife of a coke-burner named Richard Yates, residing in a house close to a place known as "The Fire-holes," on the turnpike road leading from Bilston to Tipton. About nine o'clock on the above morning she had occasion to go up stairs to her bed-room for something or other, and upon returning down stairs, just as she placed her foot on the landing in the kitchen, that portion of the flooring on which she stood gave way beneath her, and to the surprise and alarm of those of the family who were in the kitchen at the time, she instantly sank into the ground and disappeared from their sight. An alarm was instantly given, and a number of persons from an adjoining colliery were quickly on the spot, but they were unable to render any assistance at the moment, even had such been possible, owing to the suffocating nature of the atmosphere which filled the house, and which their experience in such matters convinced them proceeded from an old coal-pit, into which the unfortunate woman had fallen. In order to give free vent to the foul air, the back walls of the house were pulled down, but it was nearly two hours from the time of the occurrence, before it was considered safe for any one to penetrate in an attempt to ascertain the fate of the unfortunate woman. At the end of that time, however, a rope was attached to the waist of a man named J. Spencer, and he having been lowered down the pit shaft, for which it turned out to be, at the depth of about eight yards he obtained footing on a scaffolding which had been used in working the pit, and also found the body of Mrs. Yates there. Having attached the rope to her waist, she was pulled up by those above, and although she was quite warm, all attempts to revive her proved unavailing. She had evidently been suffocated by the foul atmosphere, as there were no bruises on her body sufficient to cause death. The inquest was held on Monday, at the Mosley Tavern, before T. M. Phillips, Esq., coroner for that part of the county in which the melancholy accident took place. It appeared that the house in question had been built about the year 1800, before which time the shaft must have been closed. Previous to the occurrence of the accident, the tenants had no knowledge of the existence of the shaft. It was hinted in the course of the inquiry, that a pit, the working of which was being carried on within 8 or 10 yards of the house, might have caused the accident, but nothing definite on this point was arrived at. The jury returned a verdict of "Accidental Death." The deceased was 53 years of age. —*Birmingham Journal.*

**THE COAL TRADE.**—We mentioned many months ago that the ever-vigilant member for this borough, Mr. Hunt, had moved for a return of the duties exacted from the article of coal by the several municipalities of the kingdom; and we foretold that the document, when completed, would present a fearful picture of folly, ignorance, and extravagance. It has turned out precisely as we anticipated. An amount of taxation to the extent of a quarter of a million sterling is annually drawn, by municipal and other local bodies in the United Kingdom, from the importation of coal and coke, and upwards of 30,000,000 a year from the exportation of the same articles. These importations and exportations, we need hardly observe, are made by sea. The duties, however, levied on coal and coke carried by railway, have only amounted to 214,662 during the past year, and in 1846 they did not exceed 665. These facts and figures require, and we trust will receive, much serious consideration in the north of England. —*Gateshead Observer.*

**BARRISTOWN.**—Capt. T. Angove (Oct. 27) reports.—The ground in the eastern flat-red shaft is still the same as last reported. The lode in the 16 fm. level and east is nothing improved, producing good stones of ore only. The lode in the adit end east is producing about 1 ton per fm.; the present adit end east is about 12 fms. east of the great cross-course; and the 16 fm. level end east has 20 fms. further to be driven to intersect it. We shall commence to ship on board the *Francis Mary* from 28 to 30 tons of lead ore to-morrow, for the ticketing.

**BEDFORD UNITED.**—Capt. James Phillips (Nov. 1) reports.—At Wheal Marquis, the ground in the engine-shaft is somewhat improved for sinking. In the 90 fm. level we are still cutting through the capels of the lode, which prove to be very large and hard. There has been no lode taken down in the 80 fm. level east. The lode in the 70 fm. level east is 18 in. wide, producing black and yellow ore—saving work; and the lode altogether is much more promising than for many fathoms behind. The pitches are yielding good returns. We weighed at Morwellham, on Friday last, August ores, 102 tons, 15 cwt., and sampled September ores, computed 102 tons.

**COMBLAWN.**—Captain James Hosking (Nov. 2) reports.—In driving east from the engine-shaft, in the 20 fm. level, we have intersected the north and south lode, or cross-course; its underlay, bearing, and size is just as it was in the 15 fm. level, but, although at such a trifling distance, the prospects are greatly improved, and we have this day set the men to drive south towards the main lode; we expect to intersect this lode in driving from 10 to 12 ft.—price given, 2½ 2s. per fm.

**DEAN PRIOR AND BUCKFASTLEIGH.**—Captain H. Choake (Nov. 1) reports.—I have to inform you, that we are getting near the lode. In cross-cutting in the 40 fm. level, in the past week, we have intersected a small branch, composed of spar and stones of yellow copper. The ground is somewhat harder, but of a very promising character; and I have no doubt, that when the lode is cut at this point, that it will prove satisfactory. Present price for driving, 8½ per fm.—driven from shaft, 9 fms. 2 ft. 6 in.

**DEVON AND COURTENAY.**—Capt. N. Seecombe (Oct. 31) reports.—The end driving west, in the 40 fm. level, is at present small, composed of spar, mundie, and spots of ore; the ground is rather harder, and will not now require timber for securing the level. In the end driving east, in the 50 fm. level, the lode is 2 ft. wide, composed of capels, spar, mundie, and good stones of ore interspersed throughout the lode.

**EAST CROWDALE.**—Capt. S. Paull (Oct. 28) reports.—Thomas's lode, in the 17 fm. level, east of Diamond's shaft, continues just the same in appearance as when last reported upon, except that the ground is changed for the better. We intend to cut through the lode to the south side, which will prove that part of the lode, and begin a cross-cut, to cut the lodes still further to the south. The ground in the cross-cut north, in this level, continues to be a close blue killas, intermixed with branches of spar and mundie. The adit level, driving west on Thomas's lode, is improved in its appearance; the killas is wearing out and giving place to peach, which is a sure indication that the quality of the lode will be better; it is from 14 to 15 ft. wide, composed of peach, priam, spar, mundie, killas, and tin, and produces at present about 30½ worth of tin per fm.; the stopes in the back of this level look just the same as when last reported upon, the lode being much mixed up with killas; it is 10 feet wide, worth about 15½ per fm. We have not as yet begun to sink the winze below the level; the men having discovered a branch containing tin in the south side, have been engaged stripping it down previous to their commencing to sink, which will be on Monday next.

**EAST TAMAR CONSOLS.**—The agent (Oct. 30) reports.—The shaft being sunk 10 fms. 3 ft. under the bottom of the 60 fm. level, is now suspended, and the men set to drive north and south on the course of the lode. As it is desirable to extend this new level as far as possible during the ensuing months, I have put six men in each end; the north is set at 4½, the south at 3½ 10s. per fm. from the slant, 8 fms. each way. The north end, in the 60 fm. level, is set to four men, 2 fms. stent, at 4½ per fm. and 5s. tribute; the lode in this end is 3 ft. wide, rather light, with a good deal of water issuing from it—it is worth about 6 cwt. of lead per fm.; the distance driven in the past month, is 2 fms. 4 ft. 6 in.; the south end, in the same level, is set to four men, 2 fms. stent, at 3½ per fm. and 5s. tribute—this end has been extended 7 fms. 2 ft. in the past month on the course of the lode, which has produced about 8 cwt. of lead per fm., and opened very good tribute ground. In the present end the lode is about 4 fms. wide, with a leader on the eastern side, 15 in. wide, and a good branch of lead on the bottom wall. The north end, in the 46 fm. level, is set to four men, 2 fms. stent, at 3½ 15s. per fm. and 5s. tribute; the lode in this end is 2½ ft. wide, and worth 6 cwt. of lead per fm.—driven last month 3 fms. 1 ft.; the south end, in the same level, is set to four men, 3 fms. stent, at 2½ 15s. and 5s. tribute: we have now got through the hard ground, and have a fair lode, principally spar-spar, yielding saving work, and there is every reason to expect that it will continue to improve—distance driven, 3 fms. in the past month. The following pitches were also set:—In the back of the 60 north, to 2 men, at 1½ in. 17; ditto 4 men, 10s.; ditto 4 men, 3s. 9d.; in the back of the 60 south, 4 men, 7s. 6d.; ditto 46 north, 4 men, 11s.; ditto 25 north, 4 men, 11s.; ditto 11 south, 4 men, 11s.; ditto 11 ditto, 4 men, 10s. 6d. One pitch in the 25 north was refused, but no doubt it will be taken in a day or two. The work broken in the past month we estimate will produce 40 tons of ore, and, from present appearances, we expect to raise the same quantity during next month.

**GREAT MICHELL CONSOLS.**—Captain T. Richards (Nov. 1) reports.—The lode in the 45 fm. level, west of the sump-winze, continues exceedingly promising, containing mundie, ore, spar, and fluor; the ground, on the whole, is more favourable for driving. In the 35 fm. level west there is no important alteration; the lode contains capel, mundie, peach, and spar, with a small proportion of ore in places.

**HERODSFOT.**—Captains John Medlen and Peter Dunstan (Oct. 30) report.—The lode in the 106 fm. level south is 2½ ft. wide, producing ½ ton of lead ore per fm.; and in the north end the lode is small and unproductive; in the stopes, in the back of this level, the lode is 3 ft. wide, producing ½ ton of ore per fm.; we are rising in the back of this level by the side of the lode against a winze sinking below the 94 fm. level, to ventilate this part of the mine. In the 94 fathom level north the lode is divided into three branches; the western branch is producing good stones of lead ore, but since the last report no progress has been made, in consequence of the men being put to rise against a winze in the 82, which we expect to hole in a few days time; in this level south the lode is 2½ feet wide, producing ½ ton of lead ore per fm.; there has been but little work done in this end, in consequence of setting some new pitches in the back, but we intend to resume the end again this week; in the winze, sinking below this level, the lode is 2 ft. wide, producing ½ ton of lead ore per fm. In the 82 fm. level north the lode is small, but producing some good stones of ore; in this level south we have driven 7 fms. by the side of the lode, and we are now about to cross-cut it; the lode when last seen in this end was 2½ ft. wide, producing good stones of ore; in a winze, sinking below this level, 40 fms. north of the engine-shaft, the lode is 1 ft. wide, producing ½ ton of lead ore per fm. In the 72 fm. level north we have reached the slide, but have not yet seen the lode, which is to the north of it, and are now about to cross-cut in search of it; in this level south the lode is 2 ft. wide, producing ½ ton of ore per fm. The 62 fm. level north is suspended. The winze sinking below the 52 fm. level, south of Windsor shaft, is sunk 4 fms., where the lode is 1½ ft. wide, producing good stones of ore, and we are now about to drive towards the shaft. Our last sampling was 30 tons of silver-lead ore, sold to Messrs. William Parker and Co., for 104.18s. per ton, and we expect the same quantity to be sampled next time.

**KIRKCUDBRIGHTSHIRE.**—The agent (Oct. 28) reports.—The lode in the 50 west of Stewart's, is 3 ft. wide, yielding 6 cwt. of lead per fm. The lode in the 50, east of Keith's, is 2 ft. wide, with a good stone of ore in the middle of the end; the west end at this level is still poor. We have had a good stone of ore in the 50, east of Stewart's, this week, and a very kindly lode. The 80, east of this shaft, is still in dead ground; the lode in the rise is large and kindly, yielding ½ a ton to the ft. I have again engaged a vessel to take over another cargo of lead next week.

**LOSTWITHIEL CONSOLS.**—Capt. John Eustace reports.—That they have opened east and west on the branch 4 fms. south of the shaft; the lode in the east end is 20 in. wide, composed of spar, peach, mundie, lead, and copper; in the west end we have cut a leader of copper ore, about 2 in. wide, which, together with the general appearance of the lode, warrants the expectation of its being productive in depth.

**SOUTH WHEAL TRELAWNY.**—Capt. W. Lean (Oct. 28) reports.—The lode in the 30 fm. level south is 2 ft. wide, composed of barytes, fluor-spar, mundie, and spots of lead; this end is set to two men at 55s. per fm. (6 fms. in extent); in the 30 fm. level north we have met with a small cross-course, which has heaved the lode west, from the appearance of it, and we have set to four men to drive in that direction to intersect it at 60s. per fm.—one fathom in extent, or lode; we have also set to two men to drive north, on the sparry branch, in this level, at 30s. per fm.—2 fms. extent; the quantity of water we have to draw is just as usual.

**TRELEIGH CONSOLS.**—Capt. W. Symons (Oct. 27) reports.—The 113 fm. level cross-cut, north of Garden's, will be driven to cut the lodes to the north of the perpendicular shaft. In the 100, west of Garden's (new), the lode is 20 in. wide, not much mineral. In the 70, west of ditto, the lode is about 2 ft. wide, of a promising character, but little ore. In the 60, west of ditto, the lode is 18 in. wide, more promising than it has been for some time past, but no ore to value. In the 50, west of ditto, the lode is 3 ft. wide, with a small quantity of ore. In the 30, east of ditto, on the north part of the lode, the lode is divided 8 in. in the south part, worth 10½ per fm.—this is east of the east cross-cut; the lode, east of the west cross-cut, is worth 20½ per fathom

which is included in the 2s. pitch; in the winze, below the 90, on the north part, the lode is 3 ft. wide, worth 15½ per fm. In the winze, below the 70, west of ditto (new), the lode is 18 in. wide, worth 5½ per fm. Wheel Parent engine-shaft, sinking in the country, is now down 17 fms. east on the middle lode—the lode is 1 ft. wide, no ore to value. The 80, west of Garden's, is suspended until a winze is brought down from the 70 fm. level.

**WHEAL VINCENT.**—Captain J. Spargo (Nov. 2) reports.—The shaftmen are getting on satisfactorily in sinking the new engine-shaft; the ground is of a soft decomposed granite, and there is every reason to expect it will continue as such to a great depth, as we are about 300 fms. east of the granite hill. We have six men bringing up a lobby for the wheel-pit. I have purchased a wheel 30 ft. diameter, and 3 ft. in breadth, at Wheal Martha, which will suit us, and different other materials, suiting our purposes. The ground in the south cross cut is much softer than last reported, and if it continues as at present, we shall soon cut the lode; this cross-cut has drained one of the old shafts, and we have men clearing it up; I hope, by the next report, to be able to state the size and quality of the lode here.

**WEST WHEAL JEWEL.**—Captain R. Johns (Oct. 30) reports.—In the 70 fathom level, west of Williams's cross-course, at Wheal Jewel lode, no lode taken down in the past week. In the 57 fm. level, west of Williams's cross-course, on the same lode, the lode is worth 3½ per fm.; in the 57 fm. level, east of Williams's cross-course, on the same lode, the lode, when last taken down, was worth 6½ per fm. In the 47 fm. level, west of Williams's cross-course, on the same lode, the lode is small and unproductive; in the deep adit, west of Hodges's cross-course, on the same lode, the lode is promising for ore. In the 30 fm. level, west of Quarry shaft, on Tolcarne tin lode, the lode is 2 ft. wide, looking very promising for tin. At Tregoning shaft, sinking below the 12 fm. level, the ground is hard for sinking, but not unkindly for tin; in the deep adit, west of Quarry shaft, on Tolcarne tin lode, the lode is 2 ft. wide, producing little tin work. The stopes, in the back of the 12 fm. level, east of Pryor's winze, on Tolcarne tin lode, are working on tribute, worth 15½ per fathom; the stopes, west of Pryor's winze, in the back of the 12 fm. level, are working on tribute, worth 26½ per fm.; the stopes, in the bottom of the 12 fm. level, are working on tribute, worth 24½ per fm.

**WHEAL FRANCO.**—Capt. R. Edwards and J. Lean (Oct. 24) report.—The 62 fm. level cross-cut has been driven 18 fms. into the capels of the lode, and has not yet intersected the leader part; it has passed through many branches of fluor-spar, spotted with ore. The capels in the 47 fm. level cross-cut were 16 fms. thick, therefore we have driven 3 fms. more in the 62 fm. level than we had in the 47, and as the water is coming away very strong at present, we hope we are not far from the leader part. The lode is evidently going down more perpendicular under the slide cut in the 62 cross-cut, alluded to in our report of the 8th of March last, and we, therefore, think it very likely to be found good when cut into. The 47 fm. level west has been driven 9 fms. since the last meeting; it has produced some ore, but the greater part has been poor, and it is so at present; the same level east has been driven, in the same time, 8 fms., the greater part of which has yielded good work; the end is at present producing a little ore, but not of much value; a winze in the bottom of this level has been sunk 5 fms., and has produced some very good work, but, in consequence of its approaching the slide seen in the 62 fm. level, the lode is going off to a point, and is, consequently, poor; and we may expect it will continue so, until it be intersected below the slide. We are still progressing with the new lobby, referred to in our last, for the erection of more powerful machinery. The tribute department is without any material alteration. [This report was read at a meeting of adventurers, held at Plymouth on the 25th October, the particulars of which appeared in our last Journal.]

**WHEAL MARY ANN.**—Capt. Henry Hodge (Oct. 30) reports.—The lode in the 50 fm. level, south of the boundary, is 2 ft. wide, and worth 10½ per fm. Barratt's shaft, being recently resumed, is now sunk 2 ft. under the 40 fm. level, where the lode is worth 24½ per fm. The lode in the 40 fm. level, south of Barratt's shaft, is 3 ft. wide, and worth 9½ per fm.; the lode in the 40 fm. level, north of Pollard's shaft, is 1½ ft. wide, and worth 5½ per fm.; the lode in the same level south is 2 ft. wide, and worth 6½ per fm. The lode in the 30 fm. level, south of Pollard's shaft, is 2 ft. wide, and worth 10½ per fm.; in the rise, in the back of this level, the lode is 2 ft. wide, and worth 8½ per fm. In the winze, sinking under the 30 fm. level, north of Pollard's shaft, the lode is 2 ft. wide, and worth 3½ per fm. All the stopes are looking well.

**WHEAL TRELAWNY.**—Capt. John Bryant (Oct. 31) reports.—There is no important change, during the last week, in the 72 cross-cut, east of Phillips's. The lode in the 62 fm. level north is still large, and worth 11½ per fm.; in this level south the lode is small, producing stones of ore; the stopes in the back of this level are yielding, on an average, 12 cwt. of ore per fm. I cannot speak of any change in sinking Trelawny's shaft under the 52, or in driving the 22 cross-cut east. The lode in the 52 end, north of this shaft, is still large, and worth 14½ per fm.; the stopes in the back of this level are producing a moderate quantity of ore. The lode in the 42 end, north of this shaft, is 2 ft. wide, composed of can and lead, worth 22½ per fm.; the stopes in the back of this level are not so productive at present as they have generally been. Being our surveying day, on Friday last seven pitches were set above the 22 fm. level, to rise the ore at tributes, varying from 60s. to 95s. per ton. At the north mine, the lode in the 30 fm. level, north of Smith's shaft, is 2 ft. wide, and worth 7½ per fm.; the lode in the winze, south of this shaft (and near Trelawny boundary), is 4 ft. wide, composed of can, spar, and lead, worth 8½ per fm.

## MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**BEDFORD UNITED.**—I am happy to inform you that they have cut into the lode in the 70 east, and broken some stones of rich black and yellow ore; they have seen but a small part of the lode as yet, but there is every probability of our having a good course of ore.

**CARADON COPPER.**—I heard, last evening, a very good lode had been cut here, and the prospects were exceedingly flattering. This weather will admit of the water being drained by the water-wheel, by which I have no doubt the next few months will give some idea of what may be expected here.

**GONAMENA.**—I hear that parties are purchasing in Gonamena at a low figure, in consequence of the cutting a new lode just at the boundary of that and West Caradon. The lode is said to be a promising one, and contains, at present, about 4 in. of ore (say, ½ ton) per fathom; it is 17 fms. deep, and adjoining the cross-course, and, therefore, in a fathom or two, the riches may vanish or otherwise.

**TAVY CONSOLS.**—They have cut a very good lode in the bottom level, and the price of shares have advanced. The extent or value of the discovery I cannot furnish you at present.

[From the Plymouth Journal.]

**WHEAL FRANCO.**—The leader in the 62 fm. level has not yet been cut. The ends in the 47 fm. level east and west are not quite so good as at our last report, but the change is not very considerable.

**WHEAL CALSTOCK.**—The cross-cut is being continued; there is no material change in the lode since our last.

**WHEAL ANDERTON** continues to look well. It is stated that an arrangement has been made with the Wheal Ash adventurers for granting to them the use of the shaft and levels for the purpose of cutting one of the Wheal Ash lodes, at a 75 fm. level, the Wheal Ash adventurers receiving a portion of the profits; but we cannot positively state that the arrangement has been completed.

**WHEAL ASH.**—The sump is 13 fms. under the adit, and the lode (7 ft. wide) is almost solid mundie. The adit level east contains more gossan than it has done for some time. The works are being prosecuted with increased vigour.

**PLYMOUTH WHEAL YEOLAND EAST.**—Little progress has been made this week, owing to a difficult shori of ground having been met with.

**PLYMOUTH WHEAL YEOLAND.**—A piece of dead ground has, during the week, been passed through; but there has been, within the last two days, an improvement in the sump, which is in the course of the lode.

**WHEAL FORTESCUE.**—The correspondent, whose communication induced us to refer to the affairs of this company, thus replies to the letter of Mr. Matthews, in last week's Journal:—"I have only to state, that if circulars are sent to shareholders, with a declaration that if calls be not paid in a certain time, the rules of the company will be enforced, and all defaulting shares forfeited, and such declaration acted upon, I shall be content—the great evil in many companies being, that adopted rules are not carried out. Now, had such been the case with Wheal Fortescue, there could not have been the sums stated due on back calls. It makes shareholders unwilling to pay, who otherwise would have been most ready to do so, when they find such amounts carried from one meeting to another."

**AUSTRALIAN MINING COMPANY.**—(From a Correspondent in Australia, under date July 4).—"The mine is looking better than it ever did, and there is no doubt we shall make, during the next nine months, a very large quantity of ore. The mine is becoming a great favourite, and I am now confident to send out a near relative to the Barra Barra. We have 150 tons ready to send off. We look forward to another source of wealth in our cobalt. The shares have been at 8 p.m. in the colony, some having, to my knowledge, been sold at that price. Our ore is very rich, and I feel confident we shall raise 1000 tons in the next nine months."

**BURRA BURRA MINE.**—(From a Correspondent).—"This mine at present is the only one which can take up vessels. They have this day chartered the *Undaunted*, and some time since the *Osborne*, which is daily expected from Port Phillip; each will convey 400 tons. The company are also loading the *Emma*, *Philips*, *Queen*, and *Branshanmor*, and after all their cargoes are completed there will be yet 2000 to 3000 tons to ship, and there is raised at the mine at this moment 7000 tons ready for the carrying season in September. It is certainly one of the wonders of the world; each share is now paying 40s. a year."



## FOREIGN MINES.

ALLEN MILES.—The following is the estimated produce for Sept.:

| Mines        | Tons of Ore. | Per Cent. | Fine Copper. |
|--------------|--------------|-----------|--------------|
| Raipas       | 50           | 7         | 3.50         |
| United Mines | 35           | 6         | 2.10         |
| Old Mine     | 30           | 6         | 1.80         |
| Ryder's      | 9            | 7         | 0.63         |
| Mancur's     | 31           | 6         | 0.24         |
| New Lash     | 4            | 6         | 0.24         |
| Quamrie      | 24           | 17        | 0.42         |
| Carl Johan's | 6            | 10        | 0.60         |
| Powderhouse  | 2            | 5         | 0.10         |
| Church       | 14           | 6         | 0.09         |
| Total        | 149          |           | 10.17        |

Mining Report from the 12th to the 30th September.

**Raipas.**—The prospects of Labouchere's lode continue as last reported; but the ground in the stopes, towards the close of the month, became more compact—in consequence of which the produce experienced some falling off; the lode itself has not deteriorated, although in the 15 and 20 ft. levels, it has occasionally been subject to fluctuations. About a fortnight ago, we commenced driving a new cross-cut, southward from the 20 ft. level, east of Monk's shaft. At the distance of one fathom from the level, a stratum of good grey ground was intersected, consisting of rich copper pyrites, with a coating of purple ore thickly disseminated throughout the limestone. It is now but two days since this discovery has been made, and it would be premature to offer an opinion before its further explored; but, judging from the regular appearance of the east wall of the lode, together with its size, about 3½ ft., and the quality of the ore, we have every reason to expect that it will prove more permanent than any of the recent discoveries. The weather has latterly been unusually mild and settled, and we have availed ourselves of the opportunity for returning the remainder of our stocks of ore. These will appear in the usual delivery note with next post; and I have every reason to anticipate that the result of the assays will give you satisfaction. The appearance of the mines on the Kaaford side has somewhat improved, which has enabled us to make up for the falling off in the Raipas produce.

The **United and Old Mines** continue to yield the usual regular returns, with every prospect of their doing so for some time to come.

**Ryder's and Mancur's** lodes are still remunerative and promising, but not rich.

**Carl Johan's** has improved, and the prospects are good. Another discovery lately made on the surface of this mine points out the propriety of resuming the old adit level, commenced in the side of the mountain about 18 years ago. A great number of veins of ore intersect the mountain in almost every direction, and we have good grounds to suppose they will form a large and productive lode at their several points of intersection. The distance to drive the adit will be about 10 or 12 fms., at a cost of \$300 to \$400. A survey of the ground shall be made, and further particulars shall be handed to you in due course; in the meantime, we have made preparations for resuming this work without delay; and with next post you shall be advised of the progress we shall make.

The **Melsvig lode**, where explored, has continually deteriorated, and in every part it has disappeared in depth. This place must not, however, be lost sight of in future, when we hope a more favourable change in the state of our affairs will enable us to explore it further, and without any inconvenience to your exchequer, which, under existing circumstances, we should not be able to avoid. The men are, therefore, for the present, employed on some of the old lodes in Kaaford, more conveniently situated for immediately availing ourselves of their produce, and enabling us to increase the returns. At **Joki's** lode, about 3 ft. remains between the end of the cross-cut, and the ore, which we hope to intersect next week, when the usual tribute operations will be resumed. On the whole, the general prospects of the mine have much improved within the last fortnight, and I hope next report will be a further confirmation of the present.

**IMPERIAL BRAZILIAN MINES.**—**Gongo Soco, Aug. 12.**—You will learn with pleasure that both your establishments were seldom, if ever, in a more healthy state than they now are. Concerning **Gongo**, I have nothing to say, except that the **Joinville** stamps are again at work. At **Bananal**, the **Tamandua** cross-cut has not advanced far since my respects of the 3d, as we have been obliged to employ the men in working on opening at the surface, to promote ventilation. **Goldsmith's** shaft is within 5 fms. of the adit level, and goes down rapidly. The adit, towards it from **Walker's** shaft, is in hardish ground; we find a few fine particles of gold in it, but nothing worthy of much notice. In the same level, from **Thomas's** towards **Hollingsworth's** shaft, from **Hollingsworth's** towards **Thomas's**, to meet that last named, and from the former southward towards the old abandoned works, all go on well, the rock being favourable in them all; in the latter we expect to reach the neighbourhood of the riches, whence the old proprietors are said to have been driven by the crushing of their levels and shafts, in a few days; but we fear this level is not deep enough to take us beneath the old excavations; and deeper we could not go, as we are as low as the adit will permit the escape of water. Some alterations in the pumps at **Walker's** shaft have rather interfered with our progress in sinking it, as well as with the extension of the 7 fm. level towards **Thomas's** shaft; but, as these works have been concluded, we have resumed sinking the shaft, and driving the level. We have taken a little work from the **Big Pump** vein, below the adit level, but it has not been rich. Finding that there is a greater distance between this sink and the rise above the 6 fm. level, south of **Thomas's**, than there ought naturally to have been, we suspect that the vein has been divided in the intervening ground, and that whilst we have sunk on it above the division, we have risen on an oblique branch of it. At **Thomas's** shaft, we have sunk from 3 to 4 ft. since my last; the vein varies in size from less than 1 to 2 in., and both it and the ground near it have a very encouraging appearance. We have great pleasure in referring to the accompanying 10 days' gold returns, and in informing you that the vein now in sight is equally rich with the portions whence our produce has been obtained. The contiguous stone will have to be removed, the sides of the shaft secured, and the pumps dropped in a day or two; still these are but trivial obstacles, and we are now looking forward with the utmost anxiety to further operations in the same direction. The buildings, and other surface works, are going on as usual—satisfactorily. We hope to dispatch **Thomas Gray** with a remittance of gold in about a week, but we shall detain him until the last minute, which may admit of his reaching **Rio** in time to ship the treasure in the next packet (*the Penguin*).

**P.S. Aug. 14.**—Up to midnight on Saturday, the vein in **Thomas's** shaft, at **Bananal**, remained much as it has been during the whole of the 10 days past. Our gold returns from thence during the same period being 28 lbs. 1 oz. 2 dwts. Our remittance to **Rio** will probably be from 75 to 80 lbs.

**Aug. 23.**—At **Bananal**, having succeeded in ventilating the **Tamandua** cross-cut, it now goes on well. **Goldsmith's** shaft will have reached the adit level by the end of the present month, by which time we also hope to have effected a communication, in that level, between **Hollingsworth's** and **Thomas's** shafts, and thus to drain the water from the former, and from the former proprietors' old workings near it, without the aid of pumps. The adit level, from **Walker's** shaft towards **Goldsmith's**, goes on well. Southward from **Hollingsworth's** shaft, we have reached the old excavations, all of which, except the very mouth of the shaft, seem in good order. This level is so nearly at the plane of our deep adit, that but a little enlargement will make it serve our purpose for some fathoms, and thus expedite our work. We have not yet made search for the riches universally reported to have been left in sight here, as we secure every part as we advance, that lives may not be needlessly risked; but a post or two will enable us to report on this important matter. At **Thomas's** shaft, the gold vein is still productive, but we must remove the rock near it, and secure the sides of the shaft, before we can extract gold again, and these operations will still require a few days for completion. **Walker's** shaft continues to be sunk regularly, but our progress is slow, in consequence of the abundance of the water, and a considerable influx of sand, which injures the pump buckets, and requires them to be frequently changed. The 7 fm. level, from this shaft towards **Thomas's**, goes forward slowly, as the ground is hard. All the other works are said to go on well.

**Bananal, Aug. 24.**—I had hopes of being able to add something to what I had already written respecting the vein at **Thomas's**. We have taken down all the unproductive rock, and have secured the shaft. At this instant we are about to work on the vein; but I dare not detain the postman, lest it cost the loss of a post. If, however, anything worthy of notice should occur, I will write again on the 28th inst. At the old workings, near **Hollingsworth's** shaft, we see a vein which, though not rich, affords a tolerable sample of work for the stamps; but time has not yet permitted us to examine all the old workings.

**Sept. 4.**—It is my agreeable duty to acquaint you with the best news I have ever had to communicate from **Bananal Mine**, or, indeed, any other part of your property. On extending our adit level from 2 to 2½ fms. beyond all the old workings southward of **Hollingsworth's** shaft, on the same series of veins on which both the old parties' level and our own had been driven, we cut a bunch of gold, which has given us six boxes of work, estimated to contain from 8 to 10 lbs. of the precious metal. The productive part yet seen is only from 2 to 3 ft. long, but the same veins continue as well upward and downward as in length, and the ground about them is favourable, although in the present end of the level their quality has declined. Gold to such an extent, in unexplored ground—for all before us is there untouched—at a distance of 60 fms. from the angle spot whence our previous riches have been obtained, is a discovery of such value and importance as has never, during my superintendence, gladdened your establishment. We all think it, at least, doubles the apparent value of the property. At **Thomas's**, the best report I can give is the enclosed duplicate gold return from thence for the past 10 days; and I am happy to add, that the vein remains unaltered in quality. I have this instant left the bottom of the mine, and write in haste to save post, which I have already detained to the last moment possible. Had not our preceding reports been such as to

raise your hopes, I should have sent a special messenger to **Rio** with this agreeable intelligence.

| Gold Return—        | Gongo.         | Bananal.       |
|---------------------|----------------|----------------|
| From August 3 to 10 | Lbs. 4 5 6 0   |                |
| " 11 to 17          | 12             | Lbs. 13 0 10 0 |
| " 18 to 26          | 6 5 6 0        | 8 9 0 0        |
| " 27 to 30          | 28             | 7 10 0 0       |
| " 29 to 30          | 9 10 2 0       | 9 10 0 0       |
| Total               | Lbs. 20 8 14 0 | 62 1 14 0      |

A remittance of 84 lbs. 10 ozs. 13 dwts. 8 grs. gold dust arrived, per *Penguin*.

**NATIONAL BRAZILIAN MINES.**—**Cocao, August 24.**—A considerable portion of ore has been removed from **Collett's** shaft, and gold has been daily visible in the stone; we trust something is not far distant, being all sanguine of meeting with a deposit of soft jacintha in sinking on the place in question.

**Cuiaba, Aug. 6 to 26.**—I have the pleasure of sending you still better and more encouraging news; in breaking through the last floors of the lode to hole underneath the arch, I am glad to be able to state, they are of such character as to warrant great interest to all parties connected with the company. On Monday, the 21st ult., I discovered, after blasting into one of the floors just alluded to, that gold was visible in the lode to no small extent; the gold appears irregularly disseminated throughout the stone for about 5 ft. thick, and about 9 ft. wide. Produce—**Cocao**, 10 days, to the 24th August, mks. 12 0 2 11; **Caiaba** ditto, 26th August, mks. 5 1 2 41 = mks. 17 1 4 52.

**ST. JOHN DEL REY MINES.**—**Morro Velho, August 8.**—The produce for July—17,979 oitavas, equal to 172.72 lbs. troy, from 5106.4 tons of ore, equal to 8.52 oitavas per ton of ore.—This produce more than realises my anticipations in my letter of 28th of July, and will, I trust, appear satisfactory to the board. In the first 20 days' stamping of the month, we suffered a diminution of 600 oitavas by the loss of a day's stamping, in consequence of the successive disasters on the **Christie's** rego, besides having been obliged to stamp 1000 tons of inferior ore, worth only 1½ to 1.7-10ths oitavas per ton. During the last 11 days, however, when we were enabled to supply the whole of the stamps with fair average stone from the mines, the difference in the result has been very advantageously felt; and, should we be able to continue doing so during this month, I think it fair, in the absence of any untoward accident, to anticipate an improvement of at least 1000 oitavas in the produce for August. In the stamps working, during the first 20 days of the month, the mine did not meet the increased demand caused by the 18 heads **Powles** stamps. Since then, however, we have not only been able to supply the entire of the stamps from the mines, but to resume picking it on the floor, though to a very moderate extent. Of the 5106 tons stamped in July, 1073 tons were of inferior ore, worth at most only 1.7-10ths oitavas per ton; 4033 tons, supplied by the mines, yielded four oitavas per ton, which, considering the very small extent to which we were enabled to pick the ore, shows a fair average value. Cost for July, rs. 42,776.9887, at 24½d. 4866l. 16s. 4d.—Produce, 17,979 oits. (less duties 7 per cent., 1258 oits.), 16,721, at 7s. 7d., 6340l. 8s. 11d.—1797l. 4s. 7d. This is an enormous cost. It is true, it includes rs. 6148 for the expenses of my family from England, leaving the *bona fide* monthly cost about rs. 36,630. Still, this is enormous; and, under the following heads, I anticipate a reduction of about rs. 3000 in this month's cost, viz.:

**Materials.**—The expenditure in timber and **Candeia** poles (\$3373) is unprecedentedly great, caused by the demand for joists and flooring at the new hospital and amalgamation house, as likewise the immense consumption for launders, &c., at the **Christie's** rego. Under this head, I look for a reduction this month of about rs. 1400; adobas and tiles for the new hospital (\$719 under the head of sundries), reduction in August probably, rs. 600; **Labour**—July contained five weeks' payments for native labour, and rewards and overtime; August will contain only four weeks' payments; reduced charges may be, rs. 550; **Incidentals**—Under this head are some items, which cannot appear in August, to the amount of rs. 450 = rs. 3000. But, considering the great increase to our manual force, causing a corresponding increase in the costs for hire, for clothing, for provisions, the rapid extension of our mining operations enabling us to supply the stamps with 2000 tons of ore monthly more than when I arrived, and the immense consumption of materials in the works now in hand, I cannot hold out any prospect of returning to the same moderate scale of expenditure which prevailed heretofore. The board will, however, observe that a considerable portion of the increased expenditure is upon new works, destined in a short time to be the means of large additional profits; and, therefore, I hope they will feel satisfied with the comparatively moderate profit of 1797.4s. 7d. for July; and, anticipating, as I do, for this month an increased produce, coupled with a diminished cost, I think it may safely hold out the prospect of a far more brilliant profit, as the result of our operations in August.

The inclined plane in the **Cachoeira** went to work on the 29th July, and, after some little accidents and stoppages, arising from the novelty of the machinery, then for the first time put in motion, it has worked ever since with complete regularity and success. Having as yet laid down only one line of rail, only one kibble can be worked; but this one does as much as three kipples under the old system; and when, by laying down a second line, we can employ two kipples, one descending while the other ascends, the entire hauling of the **Cachoeira** Mine will, with ease, be performed thereby with a most important saving in labour, in chain, and in timber, as well as in the risk incurred by the labourers below. This, indeed, promises to be one of the most useful improvements heretofore made at **Morro Velho**, and no time shall be lost in completing the inclined plane in the **Cachoeira**, and extending the system to the other mines, as soon as some of the smiths and carpenters, now engaged at the **Powles** stamps, can be set free from their present employment; for further details on this interesting subject I refer you to the fifth and sixth paragraph in Captain **Treloar's** mining report, which you will receive herewith; meanwhile, you will not be surprised to learn that the rapid extension we are giving to the mine works generally, and it is now proposed to give more particularly to this important point, have forced Captain **Treloar** to call my attention to the necessity of supplying him with an increase to his English force of timbermen, &c. By next post you may expect to receive a formal requisition to this effect; I dare say he will require six timbermen.

**West Quebra Paredes.**—In my letter of the 18th ult., I alluded to some experiments we were about to make, to ascertain the value, as well as the best manner of treating the ore from this newly-discovered lode; the results have been very satisfactory—it amalgamates well, and thereby yields a better produce than by the other alternative of high concentration and washing; its value is found to be 2.88 oits. per ton, which is considered extremely good, seeing that past experience gives us the confident hope of its improving materially in value at a lower horizon.

**Powles's Stamps and Amalgamation House.**—The completion of these important works has been most materially retarded by the unfortunate necessity we were under, of devoting nearly the whole force of the establishment to repair our disasters in June and July, on the **Christie's** rego, and, consequently, I fear it will be yet a month or five weeks before we can hope to see them finished.

**Morro Velho, August 18.**—Gold extracted to date, 7279 oits., from 35842 cubic feet of sand, equal to 20.3 oits. per cubic foot; this is from 11 days' stamping. Stamps working 17 days, average 79.7 heads.

The supply of stone continues sufficient for the requirements of all the stamps, enabling us even to pick it, though only to a moderate extent.

**Morro Velho, August 29.**—Gold extracted to date, 18,478 oits., from 67242 cubic feet of sand, being the produce of 21 days' stamping, equal to 20.44 oits. per cubic foot. Stamps working 28 days, average 79.37 heads. The supply of stone is but middling, and its quality but middling during more than the latter half of the month; but though not as abundant as could be desired, it has yet been sufficient to enable us to pick it to a moderate extent.

## CORNISH STEAM-ENGINES.

[Abstract from *Brown's Cornish Engine Reporter*, from Sept. 20 to Oct. 20, 1848.]

| PUMPING-ENGINES.   |                |
|--|----------------|
| Number reported  | 24             |
| Average load per square inch on the piston, in lbs.  | 11½            |
| Average number of strokes per minute   | 5.2            |
| Gallons of water drawn per minute  | 4031           |
| Average duty of 16 engines—being million lbs. lifted 1 foot high, by the consumption of 1 cwt. of coal | 634            |
| Actual horse-power employed per minute   | 787.8          |
| Average consumption of coal per horse-power per hour, in lbs.  | 4.2            |
| ROTARY-ENGINES—WHIMS.  |                |
| Number reported  | 18             |
| Number of kipples drawn  | 68,895         |
| Average depth of drawing, in fathoms   | 129.2          |
| Average number of horse-whim kipples drawn the average depth, by consuming 1 cwt. of coal              | 617            |
| Average duty of 11 engines, as above   | 1673           |
| PUMPING-ENGINES DOING HIGHEST DUTY.  |                |
| <b>Fowey Consols.</b> —80-inch single  | Millions 100.5 |
| <b>Great Polgoth.</b> —80-inch single  | 98.2           |
| <b>Great Polgoth.</b> —80-inch single  | 93.8           |
| <b>Par Consols.</b> —72 & 86-inch Stims combined   | 92.0           |
| <b>Trelawny.</b> —50-inch single   | 73.2           |
| <b>Callington.</b> —50-inch single   | 62.5           |
| WHIM-ENGINES.  |                |
| <b>Par Consols.</b> —24 & 18-inch Stims combined   | Millions 30.4  |
| <b>Fowey Consols.</b> —25-inch double  | 21.9           |
| <b>Fowey Consols.</b> —22-inch double  | 20.8           |
| <b>Great Polgoth.</b> —22-inch double  | 19.4           |
| STAMPING-ENGINES.  |                |
| <b>Tamar.</b> —30-inch single  | Millions 43.8  |
| <b>South Caradon.</b> —26-inch single  | 30.3           |
| <b>Great Polgoth.</b> —26-inch double  | 29.4           |

## REAL DEL MONTE MINING COMPANY.

A meeting of the holders of loan-notes, or debentures, was held on Monday last, at the offices of the company, Duke-street, Adelphi, to receive from the directors a statement of the affairs of the company, preparatory to its final dissolution.

**Sir ROBERT PRICE, Bart.**, in the chair.

The **CHAIRMAN** explained that the directors had thought it right, before the resolution for finally dissolving the company was confirmed, to inform the bondholders, who were the mortgagees of the company, of the position in which the property stood. As the surplus, whatever it might be, after the payment of the debts of the company, would be supposed to go to the bondholders, it was of great importance to them that the concern should be wound up as economically as possible—above all, that the establishment, as the machinery and stores necessary for working the mines, should not be broken up and sold at a sacrifice. By the advice received by the last packet from Mexico (published in the *Journal of Saturday last*), they were informed by their manager (**Mr. Buchanan**) that he found it impossible to raise the money necessary to meet the immediate liabilities; the consequence of which would be, that unless the bondholders raised amongst themselves the sum required for that purpose—viz., 20,000l.—and sent it out by the next packet, the whole property might be placed in jeopardy; as, under the law of Mexico, it might be seized by the creditors there, and sold for what it would fetch. With that money the manager considered that, under any circumstances, he should be enabled to wind up the concern, so as to make it yield the largest possible amount of assets. If the bondholders advanced this money, it would remain a first charge on the property, and not only would the 20,000l. come back to them, but it would be the means of obtaining for them a dividend on the sums they had already lent on debentures. If they did not respond to this proposition, the probability was that the whole of the property would be seized by the creditors—the mines would be swamped, as the drainage could not then go on, and the bondholders would get nothing, while the original shareholders might be left some thousands in debt.

In reply to questions put by various bondholders, the **CHAIRMAN**, **Mr. HORACE TWISS, Q.C.**, and other directors, stated that the liabilities of the company in Mexico were 30,000l. at the outside—20,000l. of which were immediately pressing—their assets in machinery, stores, and mining materials, if sold in their working state, and as between party and party, would amount to between \$300,000 and \$400,000. If the required 20,000l. were advanced, the holders of the first, or red, debentures would probably realise, besides the repayment of the new loan, something like 12s. or 13s. in the pound on their original loan. The holders of the last issued, or black, debentures were, however, entitled to nothing until the red holders received 20s. in the pound, and the original proprietors could receive nothing until the holders of the black debentures had received their 20s. If the 20,000l. were advanced in equal proportions by all the red holders, it would amount to 10l. for each 25l. debenture.

A letter was read by the secretary, from the *Mining Journal* of Saturday last, signed by **Mr. Fagan**, giving a very favourable account of the mines, and intimating, that if the company were dissolved, and the concern relieved from the heavy debt of upwards of 400,000l., which now weighed upon it, he, in conjunction with some large shareholders, should be prepared to make a strenuous effort to carry it on by means of a new company; and that, as soon as the dissolution should be confirmed, he would publish his plan.

A long conversation ensued between the bondholders and the directors, but no disposition to advance the necessary funds (which the chairman said should be forwarded to the manager by to-morrow's packet) was evinced—the prevailing opinion that the better course would be to wait for **Mr. Fagan's** scheme for carrying on the mines, which, it was suggested, would be greatly facilitated if the preference bondholders would throw their lien into the new company, by taking shares to the amount. The proceedings terminated without any vote, except one of thanks to the chairman.

Subsequently a meeting of the original proprietors was held, at which the resolution passed on the 26th Sept. for dissolving the company, was unanimously confirmed.

The **CHAIRMAN**, **Mr. TWISS**, and several of the proprietors, expressed their conviction that this step was rendered necessary—not from the failure of the concern (for it had never appeared more promising)—but from a want of the necessary capital to pay off its liabilities and carry it on. The original share capital of this company was stated by the secretary to be 844,000l.; the loan raised by the first, or black, debentures, 87,700l.; and by the second, or red, debentures, 46,800l.

## MOLONG MINING COMPANY.

The half-yearly general meeting of shareholders was held at the offices, 4, Spring-street, Sydney, on Tuesday, the 4th July.

**J. L. MONTEFIORE, Esq.**, in the chair.

The **CHAIRMAN** having read the report of the directors, observed, that the company's agent in London (**Mr. Jacob Montefiore**) had secured the services of **Capt. J. B. Clymo**, who had arrived, and been employed at the mine for the past three months, whose reports were before the adventurers, and from which it would appear, that the sanguine expectations entertained at the onset of the undertaking would be fully realised. Upon the suggestion of **Capt. Clymo**, the directors had determined on the erection of a reverberatory furnace, for the purpose of smelting or reducing the inferior or low quality ores—it being the opinion of **Capt. Clymo**, that there was sufficient ore in sight to pay the current expenses of the mine; a considerable import into Sydney of rich regulus from the mines might hence be expected.

It appeared from the report, that there was a great scarcity of labour, to which was attributed the slow progress made—the number of hands employed, including women and children, being only 26. It was, however, expected that additional strength would be acquired very shortly. The cash account submitted showed a cash balance, on the 30th June, of 249l. 10s. 5d., and due on 4th and 5th calls, 1060l.—together, amounting to 1309l. 10s. 5d. It is stated in the report, that considerable expense must necessarily be incurred in the transport of miners from this country; but, from communications with the Government, the company were induced to hope that, in future, miners would be allowed the same facilities of emigrating as were enjoyed by other labouring classes. In reply to questions submitted to the chairman, it appeared that there were about 100 tons of ore at the mine, and that a small parcel of six or eight tons had been shipped to England—it not being desirable to send any ore down to Sydney, except that of high produce.

The report having been received and adopted, **Mr. DARVALL** stated, in reply to some observations which had fallen from a proprietor, that the operations of the company, during the past half-year, had necessarily been of a limited character, as the directors did not feel themselves in a position to take any active steps, until the arrival of their managing agent; he considered the course pursued by the directors, in husbanding their resources, was highly to be commended, while he could entertain no doubt as to the results being highly beneficial.

**Mr. RAMSEY** and **Mr. DARVALL** having paid a handsome compliment to **Mr. Jacob Montefiore**, the agent for the company in London, in acknowledging the valuable services rendered by that gentleman, proposed his reappointment for the ensuing 12 months.

Some conversation having taken place as to the extent of power vested in that gentleman, and an earnest desire having been manifested by the proprietors that he should continue to render his services to, and transact the affairs of, the company, a resolution to such effect was carried unanimously.—Some further observations on the merits of the undertaking having been made by several shareholders present, the meeting adjourned.

The following is an abstract of the report of **Capt. Clymo**, submitted to the meeting, bearing date the 19th June:—**Hood's** shaft, which has been sunk to a depth of 16 fms., it is proposed to put down another 5 or 6 fms., and then to drive on the lode, so as to come under the ore ground—this shaft is down about 4 fms. in the settled ground, or rock, the lode being wide and regular, in going down it being nearly vertical. Several lodes appear to the north, dipping towards this lode, which, on forming a junction in depth, may be expected to make bunches of ore. Three lodes, or strings, of rich copper ore, from 4 to 8 in. wide, have been opened; but, from the scarcity of labour, the operations are necessarily confined. The water in the workings is but trifling, and the quantity of ores capable of being raised per month from the present openings is from 15 to 20 tons per month, of a produce ranging from 10 to 24 per cent.; the other parts of the report present no feature beyond the sanguine opinion entertained as to the results, the great drawback appearing to be the want of a mining force.

In addition to the information conveyed in the report of the proceedings at the meeting, of which the above is a brief abstract, we are informed that from 60 to 70 tons of ore have been imported, of an average produce of 20 per cent. The mine, we may observe, is situated in the Wellington district of New South Wales, about 180 to 200 miles from Sydney—the land carriage being consequently expensive; but against which is to be set the easy freight to this country, the wool ships coming from Sydney taking it as ballast at a nominal rate.

## SOUTH MARIA MINING COMPANY.

At a meeting of adventurers, held at the Count-house, on the 20th October—**Mr. JOHN SECCOMBE** in the chair—the accounts were presented, showing a balance against the company of 65l. 7s., when all calls are paid, showing were examined and past.—It was resolved, that the great south lode, now opened, be cut through to see the south wall, and that the captain then use his own discretion, to drive east or west, or both, as indications may justify on the same, and to report to, and consult the committee, as the works progress. 65 shares now company property, are to remain unsold until next meeting. A call of 10s. per share was declared, and the purser directed to collect payment of all calls in arrears. Messrs. Hambley, Clemons, Sims, Heath, Noble, and Horwille, were appointed the managing committee. Two experienced miners having been underground, and brought up stones from the south lode, such stones were produced to the meeting, and their quality was considered corroborative of the reference made to the lode in the captain's report. The following report, from **Capt. G. Francis**, was read to the meeting:—Having inter-



sected and seen about 3 ft. in width of the great south lode, which so far is ore, but no appearance of the south wall. We have driven about 100 fms. in the 20 fm. level, under the adit, 10 of which is on the course of No. 1, south lode, and the remainder in cross-cuts north and south of the shaft. My opinion is, if half this distance could have been driven on the course of the lode discovered, the mine would, ere this, have made return of profit. From the little I have seen of the great south lode now intersected, if as good the whole width as the part already cut, I consider it will induce any company to drive on the same, and believe that east between this point and the River Tamar will certainly prove a valuable piece of ground, as large stones of ore were taken from the back of this lode in the river when fixing the dam. I recommend a shaft to be sunk on its course from the surface, near the tail of the south adit level, which will shortly be required to ventilate the mine and prove the lode, at which point I expect a sufficient quantity of ore may be raised to pay a great portion of the expense of sinking the same. I would advise, as soon as possible, that the south lode be driven on west to intersect the great cross-course about 80 fms. ahead, from which large stones of lead have been taken, and carries a fine gossan in the rhode pit, where the inclination of the ground will give 60 fms. back, and from which a miner would expect good returns. I still think that South Maria will shortly be a paying mine, if fairly tried.—See my report in the *Mining Journal* every fortnight.

#### CASCADE MINING COMPANY.

A special general meeting of adventurers was held at the Queen's Arms Tavern, on Monday, the 30th October.

SAMUEL LEWIS, Esq., in the chair.

The circular convening the meeting having been read, and a statement made as to the present position of the company, from which it appeared that 600 shares and upwards had not been issued, it was determined, with the view of raising the necessary funds for liquidating the claims on the company, as also to resume operations at the mine, that the shares so referred to be issued, at 5s. per share, to such shareholders as have *bona fide* paid up the calls of 1s. per share, it appearing that 1000 shares were appropriated to the lessees, without any payment thereon, and, consequently, that the number of shares to be disposed of at such reduced cost being in the ratio of three to two. The amount due not exceeding 100l., and the liabilities being thus provided for, it was understood, that at the next meeting of adventurers, to be held on Monday, the 13th instant, a call should be made, with the view of providing funds for active operation. Matters appear to have been for some time in abeyance, there being no regularly appointed pursuer or finance committee, both of whom it is proposed to elect at the forthcoming meeting, Mr. W. Snell acting as pursuer in the interim. The prospects held out by the mine were spoken of in satisfactory terms; but in this, as in numerous other instances, the difficulty appears not so much how to cut the lodes, and obtain copper, but to find the tin necessary for such purpose.

#### EXMOOR WHEEL ELIZA MINING COMPANY.

At a meeting of adventurers, held at the George Inn, South Molton, on Tuesday, Oct. 31st.—Mr. JOHN COCK in the chair.—the accounts were presented, showing—Balance due to pursuer, as per cost-book, 76l. 13s. 11d.; labour cost for August and September, 72l. 12s. 7d.; merchants' bills, 48l. 13s. 6d. = 196l.—Cash received for calls, 141l. 10s.—leaving balance due to the pursuer, 55l. 10s. The arrears of calls now due to the company amount to 168l.; and the list of liabilities, 110l. 2s. A call of 10s. per share was made, and the pursuer requested to write the shareholders in arrears, urging immediate payment.—The following report, from Captain W. H. Whitford, was presented to the meeting:—

*Exmoor Wheel Eliza, Oct. 30.*—Since our last meeting, we have cut a whim plat in the 12 fm. level, divided and cased down the shaft, put in penstocks, cut holes and put in two sets of bearings, cut clatern plat, cut down the shaft, sunk about 15 ft., drawn up two lifts, sent down a large one in their stead, put in new connection rods, with every other thing necessary for sinking. The clock-seam not being cut at Tavistock to fit our door-piece, caused a little delay in putting the new lift to work; but we succeeded in getting the clock-seam from Combrin, which did previously belong to the same lifts; this arrived at the mine on Thursday, and the lift rods, &c., were all sent down and fixed, and the engine put to work on Saturday morning. This clearly shows that no time was wasted or ill employed. It affords me much pleasure to inform you, that the engine works considerably better than it did before. I see nothing to prevent our sinking at present; but hope that our progress will be equal to our first calculation—viz.: 15 ft. per month. I consider our present position justifies us in dismissing all fears respecting the winter floods—our present lifts being equal to the work they will have to perform. Our attention will now be directed especially to the important object of sinking the shaft with all possible dispatch, which, when accomplished, will I presume lead to the most favourable results.

#### HOLMBUSH MINING COMPANY.

A special general meeting of shareholders was held at the offices of the company, George-yard, Lombard-street, on Wednesday last, the 1st inst., which was very fully attended.—THOMAS HACKET, Esq., in the chair.

The business of the meeting was special, for the purpose of taking into consideration the present position of the company, to confirm the forfeiture of certain shares, and to elect a director.—With respect to the state of the mine, the report annexed from Capt. Lean, went fully into the prospects; and, after the fullest possible explanation was afforded by the agent, Capt. W. Lean, who attended the meeting for the purpose, a resolution was passed, to adopt the report, and to carry out the recommendations given by him.

Resolutions were also passed, confirming the forfeiture of 76 shares for the non-payment of calls, and for the election of Mr. Robert Bradley as a director. It appeared from the accounts that, after the receipt of all the calls, and striking out all the credits on account of the forfeited shares, the balance against the company (including cost to end of September) would be 535l. 18s. 11d.; against which is the estimated produce of the September raising of lead, about 225l.—leaving 310l. 18s. 11d. against the mine.—Thanks were voted to the directors and to Captain Lean.

*Holmbush Mines, October 30.*—Seven months having elapsed since the annual meeting, we now beg, as usual, to submit to you our general report of the above mine—viz.:—The diagonal shaft is sunk 74 fms. below the 132 fm. level, the ground in which is a dark blue kila strata, about the present depth we anticipated intersecting a north branch that has been driven on for several fathoms in the 130 fm. level east, agreeable to the underlie, but it must have taken a more perpendicular position below that level, and should it not pass through the shaft between this and the 142 fm. level, we are of opinion that a cross-cut should be extended north to intersect it, as well as south, to intersect that part now wrought on in the 132 fm. level. The lode in the 132 fm. level, west of the diagonal shaft, is 30 inches wide, composed of muddle, capel, and stones of copper ore; there is a pretty deal of water issuing from the end, which indicates our near approach to the great cross-course; when cut, we shall be able to drive through it, which will bring us directly under the course of ore we had in the level above, where we may with confidence look forward for some assistance, well knowing what the lode produced in the upper levels, in such a position—viz.: west of the great cross-course. The lode in the 120 fm. level south is 4 ft. wide, producing 3 cwts. of lead per fm.; the lode in the stopes, in the back of this level, is 3 ft. wide, and will also produce 3 cwts. of lead per fm. The lode in the 110 fm. level south is 3 ft. wide, composed of quartz and stones of lead, scattered throughout that width—the end will about pay for driving, leaving tribute ground in the back and bottom of the level; the lode in the stopes, in the back of this level, is 3 ft. wide, and will produce 3 cwts. of lead per fm. The lode in the 100 fm. level south is 2 ft. wide, composed of soft spar, prisms, and stones of lead; the Flap-jack lode, in the 100 fm. level east, is 2 ft. wide, composed of strong muddle, spar, and stones of yellow copper ore, of good quality, with two well-defined walls, underlying north 1 ft. in a fathom, in the midst of a beautiful white kila stratum; we have driven 34 fms. on its course from the lead lode, and we are daily expecting to intersect the western wall of the great cross-course; after which we shall lose no time in cutting through it, and explore northward to intersect the caunter part of the lode; we need hardly inform you we are still very sanguine of success on this point, fully believing we shall there meet with a productive lode; if we are allowed to form an opinion on its size, composition, direction, and underlie, not forgetting it is situated between two parallel lodes, and comparatively speaking within a short distance of each, one of which has been a very productive lode, and the other of great promise, especially to the east of the same cross-course; and our opinion is, that if this lode is not found to be a productive one under such favourable prospects, it will be an anomaly in mining; a few fathoms to the north of this level we have intersected a branch west of the lead lode, which we think is the Flap-jack lode; it will average 5 in. wide, and is composed of muddle, and stones of copper ore of good quality; we are opening ground on it in the 100 and 110 fm. levels, but as yet it is not quite clear from the flouken belonging to the lead lode, to decide its true character, but so far as we have seen of it, it has a promising appearance. The following work we should be glad to see carried out:—1. To sink the diagonal shaft to the 142 fm. level, and to prove the lode at that depth, as well as the satisfaction whether it is through the ironstone floor or otherwise.—2. The 132 fm. level, to drive through the great cross-course, and extended under the bunch of ore we had in the level above, as well as to prove the lead lode.—3. To intersect the Flap-jack lode to the east of the great cross-course, which we hope will be the salvation of the mine.—4. To continue opening ground on the copper branch lately discovered, west of the lead lode.—5. And to continue driving the 100, 110, and 130 fm. levels, south on the lead lode. The monthly cost in carrying out the above operations will be about 500l., but should you come to the conclusion of prosecuting a part of the work only (mentioned in the foregoing), the cost, of course, will be proportionally less. To accomplish the above work, and to prove the different points within named, it will take eight months; and we hope, from our present prospects, to raise about 376l. worth of lead and copper ore per month, towards the cost, until the objects above-mentioned are reached, when we hope you will be amply rewarded for the outlay.

#### SOUTH WHEEL TRELAUNY MINING COMPANY.

At a general meeting of shareholders, held at the offices, on Thursday, the 20th Oct.—C. CHIFFINDALE, Esq., in the chair.—a statement of accounts was produced, showing—Balance in favour of mine on 6th June last, 116l. 12s. 1d.; call of 40s. per share, 512l. 6s. 1d.—To mine cost for May, 145l. 8s. 3d.; June, 105l. 9s.; July, 121l. 13s. 6d.; August, 86l. 0s. 10d.; Sept., 54l. 0s. 9d. = 512l. 6s. 1d.—leaving balance in favour (less Oct. cost) 114l. 9s. 9d. The assets and liabilities were shown as—Cash, 192l. 11s. 9d.; calls unpaid, 84l. = 276l. 11s. 9d.—less merchants, 99l. 2s.—showing balance in favour of the mine, 114l. 9s. 9d.—The accounts having been examined, were allowed, and a call of 80s. was made. The following report from Capt. J. Bryant, R. Dunstan, and W. Lean, was read to the meeting:—

Oct. 30.—As to your request, we have carefully inspected the above mine, and in forwarding our report, we can only give a plain statement of what has been done, and appearances as far as appeared. The adit is extended northward from the valley 112 fms. on a very level lode, lately composed of barytes and kila, with a portion of gossan, varying in size from 1 ft. to 3 ft. wide, on a bearing of 27° west of south, which corresponds with the bearing of the lode in Trelawny and Mary Ann; and we have no doubt

of its being the same, and we are strengthened in our opinion by having dialed the 30 fm. level in Mary Ann, south of the engine-shaft, which is extended 25 fms. on an average bearing of 27° also west of south. We have also taken specimens from the 30 and south, in Mary Ann, which corresponds with the character of the lode in South Trelawny Mine, and we have traversed at the surface, and bring the lode in South Trelawny near enough to prove that it can be no other. The lode in the adit is 19 fms. 2 ft. west of the shaft; the shaft is sunk to the 30 fm. level, where there is a cross-cut driven west 19 fms., and a lode cut somewhat similar in character to the lode in the adit, at the point where it was first cut in the 30, being composed of kila, barytes, interspersed with spots of lead throughout, but in either end, at present, does not look quite so kindly. The south end is extended from the cross-cut 4 fms. 3 ft., but the lode is much disordered, being split into several branches, with horses of kila between, with spots of lead in it. The north level is extended 5 fms., the lode in the end is small, composed of a leader of fluor-spar and barytes. In the 30 cross-cut we observed several branches, two of which particularly struck our attention, as being offshoots from the lode above, and we would advise opening a fathom or two northward on the one nearest the shaft. In reference to your hint respecting the branch to the east of the shaft, we beg to say that we think there is no probability of there being any ore there, seeing that a cross-cut is driven east in Trelawny 60 fms., and 45 fms. west in Trelawny, and nothing of the kind seen in that distance. With respect to proving the lode in depth, we think that the best, speediest, and cheapest way, is to sink the engine-shaft, and we would recommend that in doing so you should sink to the 50, before driving another cross-cut. We should also recommend driving the 30 fm. level north and south, by two men in each end; this will prove the lode in the 30, while you are preparing to cut it 20 fms. deeper.

#### WHEEL WALTER MINING COMPANY.

An adjourned meeting of adventurers was held at the offices, 4, King-street, Cheapside, on Wednesday, the 1st inst.

HENRY SMITH, Esq., in the chair.

The minutes of the meeting of 18th Oct. were read.—The CHAIRMAN stated, that Mr. Walter Weekes had not transmitted any further accounts, and, consequently, that the shareholders were not in possession of other information than that submitted at the preceding meeting. The committee then appointed not having been able to make any report, and Mr. English, who had been nominated as acting for that gentleman, from whom a letter was read, having declined to take any part, consequent on the absence of vouchers, or any authority to act on his (Mr. Weekes's) behalf, it would be, therefore, for the meeting to determine as to the course to be pursued.

Mr. J. E. Fox, acting on behalf of Mr. Bridgman, the attorney for Mr. Weekes, laid before the meeting letters under date the 17th and 30th ult., in which Mr. Weekes adheres to the statement previously furnished, as to the correctness of the accounts, at the same time expressing the desire of that gentleman that the accounts should be "fairly settled," and laid the cost-sheets from May to October, 1847, upon the table.

A letter from Mr. English to the chairman, stating that he had not received the pay-book, or other vouchers, from Mr. Weekes, or any authority to act on behalf of that gentleman, as also copy of letter, addressed by him to Mr. Bridgman, were read. Mr. English having, under the circumstances, declined to enter into any examination of the accounts, or further interference, a general conversation ensued, as to the propriety of the course to be pursued under the circumstances; when it was resolved, that the committee appointed at the last meeting, be requested to act, and prepare an additional balance-sheet, showing the exact state of the affairs of the company. It was, moreover, resolved, that the meeting does not recognise any charge on the part of the pursuer from May, 1847, and that he be applied to for the production of the cost-book, and all papers connected with the mine—such to be transmitted to the committee, on or before the 6th inst.

The meeting then adjourned to Wednesday, the 8th November.

An expression of the feelings of the adventurers present was manifested towards Mr. English, for the straightforward course he had pursued; and thanks having been given to the chairman, the meeting adjourned.

Since the meeting, we have been given to understand that a meeting of the committee has been held, who, on investigating the accounts, have come to the conclusion, that a balance of 107l. 3s. 9d. is due from the pursuer, as appears by the cost-sheets and remittances made (excepting a claim of Bayley and Fox), which, we presume, will be laid before the adjourned meeting—thus leaving to the pursuer the payment of all other demands upon the mine.

**EAST WHEEL ROSE.**—A meeting of adventurers was held on the 27th Oct., at which a statement of accounts for July and August was submitted, showing:—Balance of last account, 2694l. 19s. 5d.; proceeds of lead ore sold, 10,331l. 8s. 9d.; Carriage of adventurers, for supplies, water charge, agency, &c., 289l. 2s.; ditto, for three-fourths of profit, 542l. 12s. 4d.; on account of lead ore, sold 1st Sept., but raised in August, 820l. = 14,678l. 2s. 6d.—July costs, 2444l. 8s. 11d.; surgeon and club, 33l. 18s. 9d.; August costs, 2297l. 18s. 7d.; surgeon and club, 33l. 10s. 6d.; bills those months, 1861l. 17s. 8d.; coal ditto, 450l.; income-tax, 200l.; dues, 667l. 9s. 7d.; waywardens of Neylin, 131l.; Stannary Court dues, 17l. 19s. 8d.; Oxnam's Mine, 5l. 11s. 8d.—By dividend of 30l. per share declared, leaving balance in hand of 2694l. 7s. 2d.

**NORTH POOL MINE.**—The two-monthly account was held at Truro, on the 31st October, when the following statement of accounts was produced:—By balance, end of June, 582l. 5s. 3d.; copper ore sold, Aug. 3 (897 tons 16 cwts. 2 qrs.), less 1-15th dues, 2438l. 17s. 1d.; tin sold, August 16th (less dues), 54l. 14s. 9d.—3026l. 17s. 1d.—Cost for July and August, 1467l. 11s. 7d.—Dividend 15l. per share declared, leaving balance in hand of 59l. 5s. 6d.—Ores, 988l. tons (after dues), 3600l.; supposed cost, 1600l.; estimated profit, 2001l.

**TREGORDEN MINE.**—A general meeting of shareholders was held at Liskeard, on the 28th October. The accounts to end of August were audited and passed, showing a balance of 96l. 0s. 3d. due to pursuer, and a call of 20s. per share agreed to. The shaft, 85 fms. north of the engine-shaft (now down 4 fms.), continues to produce splendid gossan, with stones of lead intermixed; the lode is 3 ft. 6 in. wide, and it is quite free from water. The engine-shaft is still being sunk, the lode in which improves as they sink it. The engine does its work well; they are preparing to drop another lift of pumps.

**WHEEL ARVORE MINE.**—A meeting of shareholders was held at St. Austell, on Saturday, the 28th Oct., when it was resolved to abandon the sett. A trial of the lode in the manner resolved at the meeting held on the 13th of March last, has been made, the result of which was not considered favourable to warrant any further outlay. The committee have caused the materials to be drawn up, and disposed of at public auction, and have surrendered the sett to the landowner, who has accepted the same, on condition of being paid the sum of 21l., equivalent to two years' rent, being the annual payment until the dues exceeded that sum. The proceeds of the materials have been applied to the payment of wages cost since February, and leaves a balance of 2l. 2s. 7d., which has been placed to the credit of the mine at the bank account. The liabilities, as far as has been ascertained, now amount to 71l. 6s. 9d., to discharge which a call of 12s. per share has been made.

**PENNANT AND CRAIGWEN MINES.**—The following report has been received from Capt. Hugh Jones, dated Oct. 26:—"The T cut, in Oliver shaft, in Pennant Mines, has been driven through No. 17 lode, which is 6 ft. big, making flouken, carbonate of lime, and barytes, with a great quantity of muddle and pyrites; in driving north, along the course of this lode, it will get into greater depth, and also into the junction of No. 17 with No. 2 lode, which must be within 20 fms. of us; in driving so, it is very likely that we shall meet with good bunches of ore, as the lode looks exceedingly favourable for making ore; I shall drive north, along the course of this lode, till I hear from you. I am still on the look out for good miners, to work on tribute at Craigwen."

#### FRENCH RAILWAYS.

The Central Committee has decided on the following distribution of the assistance to the various lines of railway:—

|   |        |            |
|---|--------|------------|
| Line from Paris to the Belgian frontier | France | 1,600,000  |
| Dijon to Strasbourg                     |        | 19,330,000 |
| From Dijon to Chalons                   |        | 848,000    |
| Avignon to Marseilles                   |        | 1,260,000  |
| Orleans to Tours                        |        | 200,000    |
| Tours to Bordeaux                       |        | 11,000,000 |
| Tours to Nantes                         |        | 6,420,000  |
| Orleans to Vierzon                      |        | 1,233,000  |
| Vierzon to Chateauroux                  |        | 1,075,000  |
| Bec-d'Ailier to Clermont                |        | 2,460,000  |
| Chateauroux to Limoges                  |        | 3,200,000  |
| Vierzon to Bec-d'Ailier                 |        | 3,696,000  |
| Versailles to Chartres                  |        | 9,930,000  |
| Chartres to Rennes                      |        | 2,300,000  |
| Paris to Orléans                        |        | 430,000    |
| Paris to Lyons                          |        | 20,000,000 |

#### COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Holywell Main 17 6—North Percy Hartley 16—Ord's Redhead 15—Wall's End Walbottle Hartley 15—Northumberland 18—Lambton Primrose 19—Caradoc 19 9—Hartlepool 21—South Hartlepool 19 3—Denison 18 6—Seymour Tees 19—South Durham 18 6—West Hutton 18 6—Nixon's Merthyr 21—W. E. Elgin 16—Ships, 20; sold, 11.

WEDNESDAY.—Buddle's West Hartley 16 3—Hastings's Hartley 15 3—Jonas-Hastings Hartley 15—Ord's Redhead 14 6—Tandelf Moor 15 6—West Wylam 15 9—Wall's End Gosforth 18—Northumberland 17—Eden Main 19—Lambton Primrose 19—Belmont 19—Bradley's Hutton 19 9—Bell 19 9—Hutton 20—Hawesall 20 3—Lambton 19 9—Russell's Hutton 19 9—Stewart's 20—Caradoc 19—Heugh Hall 18 3—Thornley 19—Adelaide 19—Tees 19 9—Ships at market, 44; sold, 39.

FRIDAY.—Buddle's West Hartley 16 3—Davison's West Hartley 16 6—Dean's Primrose 14 9—Hastings's Hartley 16—Holywell Main 16—North Percy Hartley 15 9—Ord's Redhead 14—Bavenworth's Palaw 14 6—Towsey 15—Walker's Primrose 15 6—Wylam 15 9—West Wylam 15 3—Wall's End Bewicke and Co. 17 6—Benson's 17—Framwellgate 17—Gosforth 17—Hartley 17—Hotspur 16 6—Hilda 16 3—Pearth 14 6—Eld-dell's 17—Washington 16 3—Eden Main 17 6—Lambton Primrose 17 9—Belmont 17 9—Bradley's Hutton 18 6—Bell 17 9—Hutton 19—Hawesall 19 3—Lambton 18 6—Morrison 17—Russell's Hutton 18 9—Shotton 17 6—Stewart's 19—Whitwell 17—Caradoc 18 3—Hartlepool 19—Hudson's Hartlepool 17—Kelloe 18—Thornley 17 6—Denison 17—Seymour Tees 17 6—Tees 18 6—West Hutton 17—West Cornforth 17—Wiltworth 16—West Hartley Netheron 16 6—Nixon's Merthyr 21—Rainton Coke 23—Ships, 167.

#### MINING IN SOUTH AUSTRALIA.

(FROM OUR CORRESPONDENT.)

Adelaide, July 14.—Several new discoveries have been made since I last addressed you, both in lead and copper. At Port Lincoln good copper ore is now found on some sections lately purchased from Government; and several miners have been dispatched there to open the lodes. At Strathalby, south of Mount Barker, a promising lode of copper is being explored, and an association is being formed to work it. On the River Light, about 16 mls north of Kapunda, 640 acres were lately purchased from Government at upset price, which turns out now to contain a very fine lode of steel-grained argatiferous galena, as also copper. This property, now called the Belvidere Mine, has caused, and is causing, considerable excitement, and shares have freely been purchased at 10 times the original cost, and are rising, as the ground opens a well—90 ozs. of silver to the ton of ore; a number of men are put on to work, and tenders are called for the supply of 1000 ore bags—the ore for which is raised from the first two fathoms from surface.

The Emu Plains monster lode is still in the hands of Government, and will not be sold, probably, till the Government require to replenish the Emigration Fund, of which a very large sum is still unexpended.

The engine at Kapunda began working out the water last week, and works well. Capt. Richards, the mine agent, deserves much credit for the energy and ability he has displayed in erecting her and setting her going. The lodes in this mine will now, probably, soon begin to yield a good supply of ore again.

The Tungillo Mines (English Company) are progressing slowly, but most satisfactorily and promisingly. There is now no doubt whatever as to the ultimate dividend-paying result of this property: 180 tons of ore are being shipped by the *Brankennoor*. You will know what sort of ore it is when it appears in the Swansea sale list. Capt. Phillips is opening up the lode, and will begin raising ore again in Sept. I enclose you the prospectus of a company which has been formed here to work Wheel Gawler; it is a business-like description of the ground; and as it, in a great measure, applies to the other lead mines, may be worth giving to your readers; the shares have all been placed at the price asked for them.

Glen Osmond is doing very well, and the works reflect great credit on the mine agent, Capt. Pascoe.

The royalty question is, at the time I am writing, being argued in Court.—The Government brought an action against the proprietors of the Adelaide Copper Mine to levy the royalty, which they had refused to pay, on purpose to try the question legally. The Advocate-General and Mr. Tiekling, for the Crown, and Messrs. Fisher, Gwynne, and Hanson (our three most eminent barristers) for the Adelaide Company. A public subscription has been raised to pay the costs of the action, and to carry it, if necessary, before the Privy Council. The result will not be known before this mail closes, as the case is expected to occupy four or five days.

The Burra Burra is going on as usual; that is to say, the raising of ore continues as monotonous as ever—the shipments that have taken place since the 1st of January, to this date, I need not speak, as they will appear in the Swansea sales list, and speak for themselves. I will only add, in allusion to a remark I perceive you made in your Number of the 12th February—as to the probability, at that date, of the Burra having reached its maximum. You will have been undeceived by later accounts; nor can I give the English mine proprietors of Cornwall, &c., any hope that the maximum produce has been reached even now; the carting, certainly, has ceased at present, owing to the rains, but there is more ore now lying at grass at the Burra than at any former period, and a dividend of 10l. per 5l. share (200l. per cent.) is now regularly paid on the first day of every third month. The price of the shares is firm at 155l. cash; several purchases are just concluded for parties who came from Sydney in the last steamer for that purpose.

There is nothing new from any of the other mines.

We have received the papers from South Australia to the 10th July. The subject of mining operations is now generally one of the most prominent matters alluded to by them; but finance, railroads, and emigration, are all questions which appear to be occupying the attention of the colonists. Great complaints are still made at the insufficient supply of labour accorded to the colony by her Majesty's Land and Emigration Commissioners. The mining wealth of the colony was developed daily more and more, and the Adelaide share market has become a mart of considerable importance. Much excitement has been created by a recent purchase and opening of the mineral block of land on the River Light; the shares had been eagerly purchased at a very great premium. The undertaking originally comprised only 16 shares in 640 acres, purchased as agricultural land, at 1l. per acre, a deposit of 4l. per share paid; but these were subsequently divided into 32ds, 2l. paid, upon which 18l. remains to be paid up; the competition for them had been so great that their price had risen to 75l. Subsequently, some specimens of argentine lead ore arrived, a ton of which had been raised in one hour, with scarcely any digging, and the price had suddenly advanced to so high a point as nearly to exclude buyers altogether. It was subsequently ascertained, the papers state, with good reason, that the ton of ore found so readily was owing to certain speculative proceedings of a small number of persons who sought to "rig" the market! The Port Lincoln Mine Company had been formed—600 shares of 5l. each: purchases were freely made at 40l. to 42l. 10s. per share. Shares in the Burra Burra Mine had been done so low as 141l., but were now 155l. There was some demand for Adelaide shares. It was reported from Port Phillip that the captain of the *Woodlark*, from China, had declared that a small island, name unknown, of the Philippine group, near to Manila, has been discovered to contain copper ore to an immense extent: the ore is mentioned as being stratified, and is described as abundant throughout the island; a Captain Beech and two Cornish miners from Manila had proceeded there for the purpose of examination. A Government land sale of 4380 acres had taken place at Adelaide, and was numerously attended; the biddings were brisk, and realised 4848l. 11s.

Further arrivals from Sydney announce that the formation of railroads through the colony engaged public attention: some idea was entertained of laying down a line of rails from Newcastle along the course of the Hunter River. The estimated expense was about 1500l. Trade was dull. The estimated revenue for 1849 was 314,340l., which, with a balance of 10,000l. from 81st Dec., 1847, made the total revenue 324,340l. The expenditure was estimated at 313,179l.

At Port Phillip the demand for labour was very brisk. Salt in abundance had been discovered at Lake Bogie, of very superior quality. Copper ore had also been discovered on the banks of the Yarra Yarra in great abundance, from all appearance, and of very superior quality. Specimens of wool on the skin would be forwarded to London in order to try the market. A glass manufactory was in full operation. The population of the colony is now estimated to be 55,229, being an increase of 22,350 since the census was taken in March, 1846. The exports of this colony, during last year, amounted in value to 27,432l., and the imports to 11,130l. Value of goods received coastwise about 6000l.

From Swan River (Western Australia), advices and journals have been received, *via* Singapore, to Aug. 3.—Dr. Von Sommer had returned to Perth, after a fruitless geological examination in the neighbourhood of Cape Leewards and Geopraphe Bay. The geological features of these districts were such as to preclude the possibility of coal being found; and as for copper, the doctor could find no traces of that, but a great quantity of iron pyrites of a similar colour had probably led to the rumours of there being copper in the district. The encouraging demand for the various kinds of wood obtainable in the colony, has induced several capitalists to embark in a timber company, with a capital of 50,000l. The Western Australian Bank had declared a dividend of 12½ per cent. for the year ending June 22. A company was about to be established for the purpose of breeding horses for the Indian market.

**LABUAN COAL.**—A private letter, dated Singapore, Sept. 9, says—"I have seen and tried some of the Labuan coal, which they use regularly on board the *Auckland*, and I think, when the seam is worked to a greater depth, the quality will be much improved, as some taken further from the surface has given better results; the coal is not unlike, in all its properties, the inland coal brought to London by the Grand Junction Canal, and burns like it—quick, with a pale smoke, leaving a white ash, very similar to the Staffordshire coal. It is found on the surface, merely by removing some 2 or 3 feet of earth. I have seen a coal at the office of Messrs. Logan here, of a very curious quality, somewhat like the splint coal, but interspersed with regular layers of resinous matter, about one-eighth of an inch thick."

A cake of native silver from Lake Superior has been forwarded to the United States mint, at Philadelphia, weighing 6 lbs. 10 ozs. avoirdupois, or 96·80 ozs. troy. The following is the analysis.—To determine the fineness, pieces are taken from opposite ends, and their assay by cupellation gave an average of 950-thousandths pure silver. The humid assay was impracticable from the presence of earthy matter. An ounce of the metal was then cut off from the two ends, and carefully melted with protective flux, which should remove all the earthy constituents and retain all the metallic, and the result was a loss in melting of 5 per cent. The assay of the silver resulting proved to be 999·9-thousandths, or within a minute fraction of absolute purity. The two results confirm each other, since 96·80 (original weight) at 950 fine, or 92 ozs. (weight after melting) at 992½ fine, give the same value within about three cents. The native metal, or ore, is therefore composed of 95 per cent. silver, and 5 per cent. earthy matter.

**RAILWAY CALLS.**—The amount falling due for the past four months has been gradually declining. Since July the decrease has averaged about 750,000l. sterling per month. In July the sum required from the shareholders was 4,077,246l.; for the present month of November the amount is no more than 1,753,862l., being very nearly 3,000,000l. less than in the former month. The diminution on last month is 518,293l. Upon a comparison with the returns for the month of November last year, there is a decrease of 867,356l. The total amount of calls for the 11 months of the present year is 31,247,882l. against 39,648,073l., being a decrease of 8,400,191l.







## Proceedings of Public Companies.

### MEETINGS DURING THE ENSUING WEEK.

**MONDAY**.....Grand Union Canal Company—offices, at Twelve.  
**TUESDAY**.....West Middlesex Water-Works Company—offices, at Eleven.  
 Metropolitan Sewage Manure Company—offices, at Two.  
**WEDNESDAY**.....Rumford Colliery Mining Company—George the Fourth Assembly  
 Room, Woolwich, at Five.  
**THURSDAY**.....East Tamar Mining Company—offices, at One.  
 Caledonian Railway—Euston Hotel, London, at Twelve.  
 (The meetings of Mining Companies are inserted among the Mining Intelligence.)

### NOTICES TO CORRESPONDENTS.

**ANGLO-MEXICAN MINES.**—*Erratum.*—In the extracts from this company's advice, published in our last Journal, for "Mr. Brown is making progress... towards the settlement of the creditors' outstanding claims," read, "the company's outstanding claims."  
 (?)—The *Liwanan Mine* is situated about 18 miles west of Abertystwyth, in the same channel of ground as the Gwynn Mine, and with similar indications as the Libourne Mines. The London agent is Mr. Mallard, 12, Copthall-court, Throgmorton-street.  
 We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses; not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

Now ready, price 2s.

### A Glossary of Mining and Smelting Terms,

USED IN ENGLISH AND FOREIGN MINING DISTRICTS.

Published at the office of the *Mining Journal*, 26, Fleet-street, London; and may be had of John Weale, 59, High Holborn, and of all booksellers and newsmen.

## THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, NOVEMBER 4, 1848.

The *MINING JOURNAL* is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

The more we consider the past management, or rather *mismangement*, of the directors of the **NORTH BRITISH AUSTRALASIAN COMPANY**, the more are we strengthened in the views we have taken. There is, in fact, no blinking the matter; if the affairs are allowed to be conducted in the manner they appear to have been, the shareholders have no chance of success. There is but one mode of averting this catastrophe, and that is by adopting the suggestion we offered on the 21st of last month *without delay*. It will be too late to act for such an object, when the partners find themselves minus their whole capital, and involved in debt besides, as they were in 1844, and from which they are but one short remove again. We are quite willing to make every allowance for the directors, on account of the *times* they have had to contend with; and we are not unmindful of the speculative mania, which was so rife in the colony during the early existence of the company, which would have induced us to pass over, in a great measure, the first disasters which befell them—consequently, it may have been on the immense depreciation of property some years ago; but we cannot help making some comparison between their fate and that of another Aberdeen undertaking, established in 1840, for objects of a similar nature—we mean the **Scottish Australian Company**, which has been regularly paying a dividend of 6 or 7 per cent.; and if the value of the shares is any criterion of the relative confidence placed in the stability of the two concerns, it is only necessary to mention, that the **North British** were bought, on Tuesday last, the 31st Oct., at 4s. 6d. in 12; while the **Scottish** fetched 14s. 3d. in 12. But it must also be remembered, that when the **North British** found their capital all lost in 1844, they raised more money, and have since doubled their then capital; and further, that **Australian** affairs have been improving considerably; and yet, in the face of this favourable state of things, the company is in difficulties again! They have played the game twice over, and can have no excuse for the latter. It is owing to shameful mismanagement, and to nothing else.

Can any one read the facts we have stated for the last two weeks, without holding up their hands in amazement, and without feelings even of pity, somewhat mingled with the ridiculous, for those who could act with so little forethought, and we cannot help adding, with a sort of childish simplicity? A man, to be sent out to the colony to conduct the operations of a large mining concern, and to be capable of knowing the quality of the ores he ships for England, has no previous knowledge of chemistry, or geology, but is sent by the directors, for *eight or ten days*, to study these sciences!! No wonder that the mining operations have proved a heavy loss! No wonder that the ore yet received is of so low a produce! We believe that 600 or 700 tons in all have either reached this country, or been sold at Sydney; but we find, by the public ticketings at Swansea, that during the last three years, 447 tons have been sold there, producing the sum of 48147.16s., being an average of only 107.15s. 6d. per ton. Now, this cannot pay; the freight alone must be about one-half, and the raising, carting, and shipping, must fully consume the remainder. How is this to be accounted for? Is there no richer ore in the island? or are the company's servants incompetent for their duties? The sooner this is discovered and answered the better for all parties. What is the use of carrying on operations which entail so much expense and loss? otherwise let them be managed by those who know their business. The last accounts state, that neither ore nor copper is on the way home, nor do they give any information of the value of the mines.

Again, let us refer to the smelting operations. A furnace was erected at Sydney, two thousand miles from Kaw-aw, to smelt ores, which, it was said, heated in the vessels to such an extent, as to make it dangerous to convey them in their rough state! And this smelting establishment was interdicted by the authorities as a nuisance—an appropriate end to so foolish an act. But, at the same time, all the money expended on the erection of works has been lost. How can the shareholders be surprised at finding themselves in difficulties? We cannot think that the directors can have any sufficient justification for withholding from the shareholders all information of the actual position or prospects of the concern. They are bound to give an annual balance sheet; and, when this is discontinued, the shareholders have a right to appoint trustees for their property, who will act in a manner deserving their confidence.

It is ever with painful feelings we advert to those calamities which too oft are recorded in our columns—the loss of life in mines and collieries; while, on the present occasion, the sad event which again calls upon us to offer some few observations, affords another mournful evidence of the necessity of legislative enactment. We know not whether, in writing on this melancholy subject, we should do so in sorrow or in anger—the first feeling is naturally caused by the sad event—the latter consequent on the absence of those precautions which might have been the means of preventing the sacrifice of 30 fellow-creatures, and saving from the distress of mind, and possibly the horrors of poverty, as many families, who have to deplore the loss of their relatives and protectors. Here have 17 widows and 52 children been left unprotected for—13 of the poor fellows being unmarried, but who, in all probability, had to provide for, or aid the support of, a widowed mother, or infant brothers and sisters.

Let us then seriously reflect on the case before us, as one which has claims on the sympathy, or the kindly feelings, of "One and All;" and which is, we lament to say, of too frequent occurrence; while the apathy displayed by the Legislature, the colliery proprietors, and the adventurer, reflects a disgrace upon the country. How to remedy the evil it is hard to say, however easy it may be to point out the course. Petitions to the legislature have, from time to time,

been presented, and ordered to lie on the table, unnoticed, except that, in the presentation, the House felt their time taken up by the introduction of a measure in which they felt no interest—that of the welfare, the life, of their fellow-creatures. No; this is beneath legislative interference, it would seem. We have, say our sage Legislators, provided Unions; there is a receptacle—a home—for the widow and orphan, whose hearts are bleeding, and to whom the cup of grief will not fill up the cup of sorrow. Why is it that Government should leave this class without protection, which they not only seek, but to which they are entitled? Is it that human life and suffering is less to be considered than the canine species? We fear that every unbiassed mind must arrive at one, and only one, conclusion, which reflects sadly on the present age. We are advancing rapidly with a railway speed in the carrying of measures, many of which are doubtful as to the issue; while a class, numbering hundreds of thousands, who have no protection, are refused that which is provided even for the criminal at the bar of justice—that of the protection of the law. Let laws then be passed to enforce the observance of those protective measures, so necessary as regards the working of mines and collieries, and the blessings of the working miner and his family will attend.

We may say with some pride, that so far as individual exertion is concerned, we have taken, perhaps, the most active measures of any one connected with the mining world to wipe away the disgrace. We have by personal interviews, by correspondence with her Majesty's Government, with Members of both Houses, with the Civic authorities, and with proprietors and adventurers in mines, used every effort to aid and protect the working miner. Meetings have been held, assistance has been promised—but we regret to say, the latter are only isolated instances of the humanity of parties who are influenced and operated upon at the moment by the sad and harrowing tale of distress. It is then only, upon occasions like the present, that we can hope to excite the kindly feelings of those whose incomes are dependent upon the employment of the miner and collier; and while we appeal to their sympathies, we do not hesitate to claim, on behalf of the operative, that aid to which he is so fully entitled.

Having thus expressed the feelings by which we are actuated, in thus again addressing the mining community on a subject which is most painful, we shall defer, until next week, entering into details with reference to the accident.

Those of our readers who are interested in Mexican mines, will not fail to notice the report of a meeting of the **REAL DEL MONTE COMPANY**, held on the 30th Oct., at which it was finally determined to wind up its affairs. We have before had occasion to remark upon this unfortunate termination to a concern which, for 24 years, has been supported with unexampled perseverance by the shareholders, who deserved a better fate than that of losing the whole of their advance, to which, however, they must now submit, unless, by another and different effort, they are disposed still to try their fortune. There are some bold spirits amongst them, who availing themselves of the loosening of the bonds (loan-notes and debentures) with which the old company has been trammelled, and unwilling to abandon a property that still holds out great prospects, have published a prospectus (which will be found in another column of our Journal this day), inviting subscriptions to a new company, having "economy and perseverance" for its basis.

Circumstances, as regards Mexico, appear to favour the scheme. That country is emerging from a state of anarchy to one in which the energies of a peaceful government are devoted to the improvement of its resources. The quicksilver required for reducing the ores of silver is becoming more abundant and cheaper, the beneficial effect of which is shown by the prospectus, which also enumerates other advantages in favour of the new company. Perhaps, the most remarkable part of the prospectus, is the statement of costs and returns for the past seven years, from which we gather, that the amount of silver produced annually has been very steady, and that the deficiency would have been amply made up, "if the mines had been kept constantly drained." At all events, there is room for hope, that by economical arrangements, and a reorganised system of working, success may yet be secured.

### REAL DEL MONTE MINING COMPANY.

SIR,—Many years ago, I purchased Real del Monte shares at several hundred pounds each, and became possessed of others in right of descent, which I had the option of declining to take, in preference to consols. "How are the mighty fallen!" Yesterday I refused 334 for what some years ago I declined taking exactly 100,000. Then I was rich, and never interested myself about the working of the mines, or, indeed, anything connected with the *modus operandi*. Now I am not rich, and have, when too late, made myself master of, and thoroughly acquainted with, every thing connected with this unfortunate, unhappy, and insolvent company; with which, had the directors recommended long ago what must now be adopted for necessity—its dissolution—the mines might have been very profitably working at this moment, by any body of men who had chosen to purchase the whole affair of us.

It is now too late; and the truth cannot be disguised. We have been lavish in expenditure, and put "too many irons in the fire." Instead of wisely limiting our outlay to those mines which did pay. A well-known connexion of mine, who holds an appointment in her Majesty's service, took the trouble, not long ago, of investigating the Real del Monte *on the spot*; and his opinion of what has, and ought not to have, been done, is comprised in the above. But, Mr. Editor, what is to prevent our joining a newly-constructed company, which I observed by your Journal was, or is, about to be formed? I refused the 334, hoping to have a preference to strangers in it; and I trust you will exercise your influence, that the present suffering shareholders shall have that advantage.—A. G.: Eccleston-street, Oct. 25.

### REAL DEL MONTE MINING COMPANY.

SIR,—I am desirous of calling your attention to certain points, which do not appear to be perfectly understood. They are, that the proprietors of the loan-notes and red and black debentures, should recollect that their claim for repayment of the moneys advanced by them to the shareholders in the Real del Monte Company, just dissolved, was entirely conditional, and wholly dependent upon the success of the old company.

The old company, being entirely without funds, were compelled to dissolve, and the effect of that dissolution is, that the mine and materials must pass into other hands; and with the proceeds the directors of the old company must first pay off their present liabilities; after which any residue, as a matter of right, will be divided *pro rata* amongst the holders of the red debentures, for the holders of black debentures have no claim whatever to one shilling, until after the red debenture-holders have received 20s. in 12, with interest.

It is obvious, therefore, that the mere shareholder could not have any interest in paying up further contributions; but, as the mine is now relieved absolutely from debt, the debentureholders are, in common with the shareholders, equally interested in the revival of the company, as being the only means by which any portion of their respective losses can be recovered; and, although they take their interest in the new company with a limited and specific liability, they give up neither their documents nor their interest (such as it may be) in the old.

I take a totally different view from the late directors as to the policy of requiring from so scattered a body a *pro rata* contribution of 20,000*l.*, and that to be collected in three days; it was quite impracticable, however desirable it may have been. But such a demand, made at such a moment, will have the tendency to lower the value of the mine and materials, which will probably be purchased on the spot for little more than will pay the outstanding liabilities in Mexico, stated to be 20,000*l.*

It is not likely that the Mexican creditors, for the paltry sum of 20,000*l.*, would size upon, or break up, the work after an outlay of such magnitude; but the trustees, to guard against such a possibility, sent out a prospectus by the mail of the 2d inst.; they, therefore, do not apprehend such a result. The great attention which the issue of the prospectus has already excited, prove the interest taken by the public in this mine for its revival.

11, Warrford-court, Nov. 3.

JOHN H. FAGAN.

It is with pleasure we note the sanction and patronage of his Royal Highness Prince Albert to the *Mining Advertiser*, announced for publication on the 1st of Jan. next. The interest thus manifested on a matter so intimately connected with our national wealth, will, we feel assured, be duly appreciated, not only by the mining world, but by the lovers of science, and the community at large.

### OUR LOST MARKETS.

The general depression experienced in all branches of industry in the United Kingdom can only be explained by want of markets. Our production is not in the present year greater than usual—consequently, old markets which we have been accustomed to supply on advantageous terms, must fail to show their usual demand. If this evil cannot at once be redressed, it will, at all events, be useful to inquire how the change has been brought about. If we cannot suddenly enrich our old customers, we may derive profit from studying the causes of their present poverty, and, perhaps, encouragement from recognising that the pressure is only of a temporary nature. We prefer beginning with a survey of our continental markets, chiefly because a knowledge of the influences which sway their condition will serve to explain much that is going on abroad, as well as to show how the changes now in progress are likely to affect us. If we pass the trade of some of the chief continental states in past years in review, we find that rapid progress was made in such as felt the invigorating effects of the reforms obtained in 1830 and 1831. The following comparative statement has recently been put forward:—

| IMPORTS.               | 1834.       | 1843.       |
|------------------------|-------------|-------------|
| France.....            | £23,375,000 | £40,770,000 |
| German Zollverein..... | 15,350,000  | 31,860,000  |
| Austria.....           | 7,706,000   | 10,182,000  |
| EXPORTS.               | 1834.       | 1843.       |
| France.....            | £21,843,000 | £24,502,000 |
| German Zollverein..... | 20,291,000  | 25,490,000  |
| Austria.....           | 12,964,000  | 15,997,000  |

Austria has as many inhabitants as France—each counted 34,000,000 in 1843. The German Zollverein had but 27,000,000 in that year—consequently, the progress made in the last-named district is greater than in France, but in all the extent of trade is singularly limited. The sum of the three nations, counting nearly 100,000,000 of inhabitants, did not, in 1843, amount altogether to the value of the exports and imports of Great Britain. That this state of things pointed to something radically unsound in the economical position of these countries, each highly favoured by Nature, does not require to be proved. Some of the circumstances attending are, however, pregnant with useful information.

An analysis of the imports and exports of the several countries named, shows that the extent of trade in general was closely proportioned to the facilities allowed the people of importing raw and half-manufactured materials—such, for instance, as yarns, pig and bar iron, &c.—

| RAW AND HALF-MANUFACTURED GOODS. | 1834.       | 1843.       |
|----------------------------------|-------------|-------------|
| France.....                      | £15,531,000 | £27,705,000 |
| German Zollverein.....           | 13,606,000  | 19,211,000  |
| Austria.....                     | 3,500,000   | 5,524,000   |

| MANUFACTURED GOODS.    | 1834.       | 1843.       |
|------------------------|-------------|-------------|
| France.....            | £13,953,000 | £17,943,800 |
| German Zollverein..... | 12,149,000  | 13,374,000  |
| Austria.....           | 3,836,000   | 4,124,242   |

These figures show the progress France was making before that country excluded English linen yarns, coals, and bar-iron, from its markets—whereas, the Austrian figures show how little the prohibitive tariff of that empire served the manufacturers and the labouring population. We have here proof positive of the axiom, which is almost a truism, that manufacturers, which cannot stand foreign competition at home, are still less able to bear that competition abroad; in other words, protection takes away the foreign market from the manufacturer.

We may carry our investigation more specially into the fields of mining and metallurgy, and we there find that the Zollverein, which has all along encouraged the importation of rails and pig-iron, exports as much as France. The value of iron of all kinds imported into the three countries was as follows:—

| 1843.                  | IRON IMPORTED. | IRON WARES EXPORTED. |
|------------------------|----------------|----------------------|
| France.....            | £ 380,000      | £376,000             |
| Austria.....           | 68,500         | 455,000              |
| German Zollverein..... | 1,522,000      | 527,000              |

But, besides in no way damaging its export trade, the German Zollverein, by taking advantage of the low price of foreign iron, has been enabled to cover the greater portion of its surface with railroads. Austria has an old established trade in nails to the Levant, which forms the chief branch of export; but the consumption of iron within the empire is extremely limited, notwithstanding the abundance of excellent ores. The high price of iron in Austria is a curse both for the agriculturist and the artisan. It is a natural consequence of the whole system, the working of which is best exhibited in the figures we have quoted; and under which, while the labourer saw no prospect of any increase of wages, and the capitalist still less hope of increased profits, the consumer was deterred, by their cost, from using improved tools, and, above all, the machinery indispensable for a rational system of agriculture.

The artificial difficulties thrown in the way of the trader in central Europe have recently been pointed out in the columns of the *Mining Journal*. The effect of the tolls on the rivers, is to act practically as a differential duty on foreign goods, now that it is customary to remit them on the domestic manufactures of the German States. On the Elbe and the Rhine those duties amount to 3*l.* to 4*l.* per ton, and, being charged by weight, it is easy to calculate how they must press upon metallic wares, machinery, &c. The charge for carriage by railway having been calculated on a scale proportioned to these incumbrances on water transport, the foreign shipper has no way of escaping from this hitherto covert breach of faith, to which he must partly ascribe the miserably small demand for his wares. But, although the continental markets were diminished and dried up by this wretched policy, their absolute loss is perhaps more to be ascribed to the operation of another tax, which, at first sight, may seem to have little connection with trade, but which, not merely the experience of the European continent, but that of every country in which it has been adopted, shows to be most pernicious. There is no more destructive impost than that which presses directly on the produce of the soil, and tends both to make food dear, and to deprive the country in which it is levied of a large proportion of the capital requisite to set trade in motion. Under the name of a land-tax, the German Governments take from the cultivators of the soil one-third of the gross produce. Now, let us consider what is the destination of the portion thus annually taken from the national earnings. It goes to feed the standing armies of one million of men, which Germany and Austria keep on foot, as well as an immense staff of employes, who, under pretence of governing the people, impede all exertion, and themselves diminish the number of productive labourers. Were this whole third of the public revenue allowed to circulate as savings, or as expenditure in trade, before it was appropriated by Government, it would set a thousand industrial schemes in motion, that would afford remunerative employment, and stimulate to further production. Eventually, the sum on which, if requisite, a tax might without injury to the country be laid, would prove far larger than that which these Governments are now in such a hurry to seize. They forget that, because it circulates in trade, the capital created by industry is not lost. It can always be found, if it be necessary to tax it; but, in the first instance, it does good by setting enterprise to work, and at a later stage it is more productive as a fund for taxation, than at an early one. To financiers, accustomed to a land-tax, it is almost useless to point out its evils. Their answer is the old proverb, that "a bird in hand is worth two in the bush." They will not give up what is secure for what they call the chance of finding it after a venture. Yet one would think it not difficult to comprehend that 100*l.* sent to England to purchase machinery must next year offer the exchequer a double source of taxation—viz.: the land that yielded the 100*l.*, and the machine which was added to the producing power of the country.

This simple truth is, however, wittingly or unwittingly ignored by most continental financiers. They have constituted themselves joint owners of the first source of production of these nations, and, unlike private owners, they dispose of their share *unproductively*. Hence a great source of impoverishment—a second and more powerful stoppage put to trade: than even the river tolls. It is essential that the English reader familiarise himself with the mischievous effects of the continental land and produce taxes, to be able to appreciate the exhaustion of the fund of wages, which is the real cause of the present troubles all over Europe. He will, after making himself acquainted with the nature and effects of such a tax, be better able to follow the remarks we propose to offer on our own colonies—the second batch of our manufacturers' lost markets.

**RAILWAY IMPROVEMENTS.**—We have read the description of a very useful and simple apparatus, fixed on locomotive steam-engines, for sanding the rails, which has come into general use. The apparatus is the invention of A. Reed, Esq., Newcastle-upon-Tyne, who constructed it 12 years ago, when it was first brought out, and used on the Newcastle and Carlisle Railway.



## PYROLITE, OR ARTIFICIAL LAVA.

Among the several prizes to be found in the list which has been issued by the Society of Arts for the forthcoming year, there is one of 50 guineas, offered by T. Twining, Jun., Esq., for the best series of experimental researches on, and specimens of, the application of slag, or other allied products, to new purposes, useful or ornamental, and which he has more minutely described in a paper which was read before the society, from which we purpose furnishing an abstract, as being of interest to our readers, more especially those associated with the subject. Mr. Twining's object is to form, by chemical means, a comprehensive series of petreous substances, which he proposes to designate, or term, pyrolite, or artificial lava, as not only being of igneous origin, but deriving from such origin the peculiar advantage which would enhance their value, for numberless purposes connected with the arts and domestic economy; namely, that, whilst in a state of fusion, they could be at once cast into the required forms, and thus obviate the labour and expense incurred in carving or fashioning natural materials by mechanical means. The practicability of producing, at a remunerative outlay, a series of substances destined to occupy the vacant range between the coarse and almost useless slag, and the elegant but costly gem, is then the object in view, and which are classified. Mr. Twining observes, that in such classification, "it will, however, be at once perceived, that the groups selected are merely conventional, being susceptible of branching out into modifications as numerous and diversified as the material which may be brought into use, and passing one into the other by gradations so minute as to defy precise specification." It will be seen from these preliminary observations, and the nature of the products to which the attention of the scientific and metallurgical world is directed, that the object is to form substances which may be moulded, or worked, into articles adapted for useful or ornamental purposes, at a cost which shall be remunerative. It is hardly necessary to observe that this, which should be one of the prominent features of the society, is of the first moment for the consideration of those associated with our smelting-works, whether in iron or copper. With the slag from the blast-furnaces of the former, various matters, rudely moulded, have been employed as coping, &c.; while the varieties obtained, from the nature of the admixture of the various descriptions of iron ores, the proportion of limestone employed as flux, and the fuel, whether coke, coal with hot-blast, or anthracite, rendering it more compact, or friable, must have, consequently, a different result as to the product, and the uses to which the slag, so procured, can be applied. In a like manner the scoria, or slag, from copper smelting-works must be treated, and on this point, we believe several of our correspondents, whose attention we know to have been directed to the extraction of copper remaining in the slag, and its application generally, are in possession of much useful information—the result of practical experience; while some, more scientific, may collate the information so acquired, and possibly furnish such results as may place them in the list of candidates, or competitors, for the prize. Mr. Twining, in one part of his paper, adverts to ores possessing but a limited proportion of metal being smelted with certain fluxes, so as to render a compact body, to be employed for the required purposes; on which we may observe, that the copper slags are known to contain a certain portion of copper, with iron, &c., which might possibly be so employed, the contents being considered so valuable, as to have induced parties to have embarked some 10,000l. or 12,000l. in the erection of machinery, in the neighbourhood of Swansea, for crushing it, with a view to its ultimate reduction, but which proved a failure. We need hardly refer to the immense masses of this material covering the surface, at the serious inconvenience and cost of the smelters in that locality. We will now proceed to give the various descriptions of slag, or other substances referred to, commencing with that designated "slag pyrolite." This is described as being cheap and useful, although inelegant modifications of the known varieties of common slag, and which are thus subdivided—1. Common slag, refined, either by allowing it to remain quiescent in a state of fusion till the mere dross has sufficiently separated itself from the vitrified mass, or by mixing up mechanically the former with the latter, so as to produce a more even texture and uniform degree of porosity.—2. Slag, which, by apposite management of the smelting-furnace, would be allowed to retain a rather greater proportion of metal than usual, or would otherwise be improved in its production, without, however, ceasing to be a merely subsidiary product. This, we should think, would apply to the processes observed of smelting copper ores with reverberatory furnaces, to which we have already adverted—the chief object being to substitute an amorphous and tough for a vitreous and brittle texture.—3. Another mode is suggested, that of either of the former being mixed up, in a state of fusion, with a certain proportion of finely-pulverised earthy ingredients, sufficient to change more effectually the character of its texture, and assimilate it, in some degree, to the black and compact lava of Vesuvius—experiments made from which having shown that it is susceptible in the fluid, or semi-fluid state, in which it is emitted from the mountain, of being pressed into moulds, and forming medals, &c., with a peculiar hardness and tenacity, at once suggesting the many useful purposes to which it might be applied.—4. Another mode suggested, is that of forming the admixture of coarser arenaceous, or earthy substances, of appropriate colour, added thereto, in due proportion, so that the substances were not rendered unfit for moulding.—5. Differing, again, from the variety described in No. 3. It is submitted, that the substance chosen for admixture be carbonate of lime, or other ingredient emitting a gaseous fluid, when exposed to a high temperature, whereby a fermentation, or frothing up, of the molten mass would be produced, which might, observes Mr. Twining, be made "to produce substances imitative of the porous lava of the neighbourhood of Naples, and to possess almost any degree of lightness, even to that of pumice-stone." Its tenacity, or toughness, and conductivity of caloric—important considerations in the construction of stoves—would materially depend on the slag employed; a coating, however, might be effectually given, both to improve its external appearance, and protect it against the effects of atmospheric exposure. The second series, to which Mr. Twining directs attention, is that coming under the term of genuine pyrolite, which he classifies, as in the former, thus—1. Metalliferous: this he describes as having an analogy with some of the before-mentioned "slag pyrolites"—the main material for its formation being metallic ore, the fusion of which would be effected with the assistance of appropriate fluxes, but would essentially differ therefrom, inasmuch that it would not be obtained as a subsidiary product, but would be manufactured without any reference to the reduction, or separation, of metals. Many kinds of ore might thus be made available, which are too poor, or too complicated, in their metallic composition, to be worked for the separation of any particular metal. Variegated or veined pyrolite may be formed by mixing together, in a state of fusion, differently coloured varieties of pyrolite, or by mixing with them metallic or other appropriate substances, likewise in a state of fusion. Other substances, or materials, might be formed by other admixtures, or appliances, the object of which is the premium offered. We shall be happy to render, through our columns, any further information on the subject; while it is only due to Mr. Twining to state, that in thus submitting it to the public, his object is that simply of ensuring to the production of pyrolite a full, scientific, and practical development, and to the public a free participation in its advantages, without seeking for any personal advantage, or benefit, from the results which may arise.

**STETTIN.**—An association, for agitating the cause of free trade at Frankfort, has been formed at Stettin, and a general invitation has been issued to all the towns of North Germany, to support the cause against the paid agents of the South German manufacturers. It is notorious that an assembly, called an Industrial Congress, sat at Frankfort through the summer, and advocated a prohibitive tariff so strongly, that Prussia was defeated in its efforts to get some concessions to free trade from the central Diet. The trading cities of the north feel that their existence depends on this question, and are now beginning to bestir themselves. A report, drawn up by the Industrial Congress alluded to, recommends the dissolution of existing commercial and navigation treaties with foreign powers—the adoption of navigation law with differential duties—a tariff, with protective rates of duty on manufactured goods, and with exemptions on raw materials imported direct from the lands of production. The report further proposes to declare the carrying trade from one German port to another, although in different states, coasting trade. It is against these new restrictions that the Baltic merchants mean to agitate.

**VALE OF NEATH.**—Lord Williams, the chairman of this line (which is to run 22 miles through the county of Glamorgan), has, with the engineers and officers, been over the works in progress during the past week. Additional contracts have been let, the company, having designs of completing their lines to certain points by the time that the South Wales Railway is completed to Swansea, and thus accommodate visitors to Merthyr.

## PARIS SOCIETY OF ARTS—NEW PRIZES.

The prizes offered by the Society for the Encouragement of the Arts, Manufactures, and Agriculture, in Paris, stand out in striking contrast with those awarded by our own Society of Arts. The prizes to be given in 1849 are, to a considerable extent, for agricultural purposes—a great effort being at present made in France for its improvement. Amongst others, a prize of 3000 francs (120l.) will be awarded to the author of a communication indicating the most perfect method of constructing furnaces suitable for the oxydation of the metals. Another prize of 3000 francs will be awarded to the competitor who shall point out the method of constructing the most perfect furnace for the casting of metals, or the reduction of metallic oxides. The society will also award medals of gold, platinum, silver, and bronze, to those manufacturers who shall send to the society the most complete accounts of the results obtained by the use of furnaces, of any particular construction, which they may have erected for their use—such communications to state the following:—The Furnace—its use and form; dimensions of the hearth; thickness of the walls. Chimney—its greatest opening; its smallest opening; its height; quantity of coal consumed per hour; ordinary product of the furnace per hour; quantity of oxygen remaining in the air taken at the bottom of the chimney; temperature of the smoke taken in the chimney.

With regard to the first of the prizes, the conditions are, for a furnace for the oxydation of the metals, to be constructed in such a manner as to throw on the fuel such a mass of air that the oxygen contained in it shall be sufficient for the complete combustion of the fuel, and for completely and readily oxydising the metal; these furnaces must be easily rendered capable of consuming their own smoke. The conditions of the second prize are, for a furnace for reducing the oxides, and casting, or remelting, metallic substances. The furnace must be erected of such suitable dimensions, that the air traversing the fuel may be so thoroughly decomposed that it shall not oxydise the metal which is to be cast, or simply remelted, on the hearth of the furnace.

The society having in view the experiments made in England by M. Napier, which tend to show that electricity, employed in that form, may operate in the production of useful decompositions in the extraction of metallic copper from the sulphate of that metal, and in the removal of certain injurious elements from cast-iron, &c., offers a prize of 6000 francs (240l.) for the application of voltaic electricity to some useful branch of industrial art of the kind referred to, to be conducted on a well-tryed and manufacturing scale. The society leaves entirely to competitors the mode of application. These prizes will be awarded in the early part of 1849, and the communications must be forwarded to the secretary on or before January 1, 1849.

## THE PATENT ELECTRIC LIGHT.

Our readers are already acquainted with the particulars of Mr. Stait's invention, for rendering the electric light permanent, self-regulating, and economical, and thereby solving a problem, which, from the days of Franklin, has engaged the attention of the scientific world. The advantages which Mr. Stait proposes by his invention, may be summed up as the production, by galvanic power, of a light not supported by combustion, of a volume and purity that exhibit, as clearly as daylight, the most delicate tints in oil and water-colour paintings, and devoid of those noxious properties which arise from other artificial lights, and which are so pernicious to health. The electric light is also capable of being increased unlimitedly, it being easy to produce a light equal to 10,000 wax candles from one pair of electrodes, exposing a square inch of actual illuminating surface, and, at the same time, causing no unpleasant sensation in the visual organ. As the light is not the result of combustion, it is perfectly safe, may be conveyed to any spot by means of solid metal wires, and does not require the application of any other ignited substance to set it in action, but may be lighted up, or extinguished, at any distance from the light itself. In addition, the apparatus being perfectly self-acting, is as momentous to the practical use of the light, as the application of the motion of the steam-power to work its own cocks and valves is to the practical usefulness of the steam-engine. On Monday evening, the practical working of his apparatus was exhibited to several scientific gentlemen, at the Hanover-square Rooms, when Mr. Stait prefaced the exhibition by adverting to the value of the production of the artificial light to all classes of the community; and stated that it was his intention to deliver, in a few days, a series of lectures on the various properties of light, and to prove that not only was the light extremely brilliant, but that it was capable of being applied to almost any practical purpose, where ordinary light was already used. He then proceeded to contrast the light emitted by the electric fluid with that derived from oxy-hydrogen and camphine, and the superior intensity of the former admits of scarce any illustration—the effect of the one being like that of the meridian sun, and of the other of a feeble twilight. With respect to the cost of the electric light, Mr. Stait observed, that a light equal to 100 wax candles could be obtained by his system, at the cost of 1d. per hour—a fact which had been tested by actual experiment. A light of from one wax candle to 100,000 might be obtained and maintained by his system. With reference to the purity of the light, he justly observed, that its superiority over every other species of artificial light, must be at once admitted. A gentleman here remarked upon a temporary unsteadiness in the light, which Mr. Stait accounted for by the pieces of carbon on which the light was developed, having an admixture of iron, whereas they required to be perfectly pure. That was a mere accident, and not incidental to the system. Having drawn attention to the superior illuminating property of the electric light in the lamp, as compared with that of any other artificial light, he directed the rays to some paintings at the extremity of the apartment, which were immediately rendered as distinct and vivid in their blue, pink, and yellow colours, as if irradiated by a noon-day sun, and were most accurately reflected in the surrounding mirrors. Mr. Stait then demonstrated the independency of the light of combustion, by producing it in a globe of water, in which it was as clear as in the lamp, which though yielding the light of 600 or 700 candles, yet evolved no more heat than an Argand lamp, with the light of six or seven candles. At the conclusion of this most successful experiment, Mr. Stait said, that in the lectures which he proposed to deliver, he would demonstrate that the electric light was fitted for almost every domestic purpose, and stated, that the facts upon which his invention was founded were the results of laborious research, and his figures and deductions had been confirmed by some of the highest authorities in the scientific world. Mr. Stait concluded his observations by acknowledging the valuable assistance which Mr. Petrie had rendered him in his undertaking. During his address, Mr. Stait was warmly applauded by the assembly, amongst whom were several gentlemen distinguished in science; and to this mark of approval he was justly entitled, as his experiments, as far as they extended, demonstrated clearly the truth of the premises which he proposed to establish.

We should observe, that the galvanic battery, which is the subject of the patent, will supply uniform power for any length of time required—that it is devoid of the odour which detracts from the batteries now in use; and the machinery is so constructed, that no more of the electric current can escape than is absolutely necessary to support the light.

Amongst the distinguished persons present were—Prof. Faraday; Mr. Cumming, the naturalist; Sir Edward Codrington, and other Lords of the Admiralty; Captain Jolland, from the Ordnance; several engineers and artists; amongst the latter were Mr. Cooper, R.A., and Mr. Patten, R.A.

## THE GAS-LIGHT MONITOR.

The great waste which occurs in the consumption of gas, and the disagreeable and dangerous consequences which result from the smoking and flaring of light derived from that fuel, must be evident to the most unobservant. Invention has been racked to devise remedies for these defects, and various ingenious contrivances have been submitted to the public from time to time—the authors thereof severally declaring that they had discovered the true secret. It has unfortunately, however, happened that success with these has been in the ratio inverse of their confidence. The cause of these failures has been that the several contrivances were deficient in the two essential elements of success—economy and smallness of apparatus. However, the desideratum has at length been supplied by the above patented invention, which is based upon a strictly scientific principle, is simple in construction, perfectly efficient in operation, and inexpensive in cost. The contrivance in question consists of a circular brass chamber, an inch long, and two-thirds of an inch in diameter, which is furnished with a movable valve, and screwed to the end of the gas-burner. The gas passes through this chamber, and, when it exceeds the required quantity, it overcomes the gravitation of the valve, which is forced up to the upper end of the orifice of the instrument, and the current restricted to the amount which can pass through a small perforation in the centre of the valve. Having seen the operation of this simple apparatus, we have no hesitation in pronouncing it most successful. It regulates most unerringly the current of gas, and prevents the escape, under the highest variation of pressure, of any excess through the burner, which, as will be seen from what we have stated, is fed with only the requisite amount. Gas, by means of this contrivance, may now be used in cases where, owing to want of the necessary apparatus, its use would be dangerous or too expensive.

This contrivance is in operation daily at the office of the patentee, 20, King William-street, Charing Cross, and may be seen at any hour. We recommend our readers who are in a position to do so to embrace the opportunity and judge for themselves, as a personal inspection will convince the most obtuse, that in economy, simplicity, and perfect efficiency, this contrivance is amongst the most successful of the present day.

**NEWCASTLE AND CARLISLE.**—At a general meeting of directors, held at Newcastle, a dividend at the rate of 6 per cent. per annum was declared for the half-year ended the 30th of June last, payable in November.

## Original Correspondence.

## ON THE SMELTING OF COPPER ORES.

SIR,—I have, from time to time, seen notices in your valuable Journal of the smelting of copper ores; but do not remember having as yet met with one that has given the entire *modus operandi*, together with the chemical changes incidental thereto. They have generally been put forward as relating to practical modes and facts, valuable in themselves, but seldom as professing to deal with the theories on which the former depend. A more general knowledge of these theories would, I should consider, tend greatly to perfect this important branch of English manufacture. The best and most economical mode of refining copper I have seen published, is that of MM. Rivot and Phillips's, contained in your impressions of the 23d and 30th September, to whom let all merit be due for bringing it before the public. But six months since, I myself produced good copper by the same process—making no other difference than that I used scrap iron, instead of iron bars; a specimen of this I have still by me. It appears to me, however, that this mode is not quite applicable to poor ores which have not been concentrated by previous smelting, since these would require roasting for a great length of time, in order to completely desulphurise them—an operation which, for the sake of a small product, might be expensive; it might, indeed, be hastened by previously grinding them to a powder; but, in this case, again the expense of grinding would interfere. Before considering the chemistry of the smelting of copper ores, it is necessary to know of what substances they are usually composed. These are—viz: sulphur, arsenic, manganese, iron, lead, tin, antimony, and sometimes tungsten, cobalt, and nickel.

Now, there are three properties of substances, of which in smelting advantage is taken—viz: fusibility, volatility, oxidability.

**Fusibility.**—Generally speaking, the matrices of ores are less fusible than the mineralised metal; therefore, it is necessary to mix with them such earthy matters, or metallic oxides, as shall, when fused together, form a liquid medium, in which the molten metals may perfectly subside. This may be effected either by the mixing together of different ores, possessing matrices reciprocally suitable, or by the addition of some flux, as may be most economical or convenient.

**Volatility.**—Sulphur and arsenic are generally the mineralisers. To free the copper from these is one of the most important steps. The order of the volatile metals is thus—sulphur, arsenic, antimony, zinc, lead, and tin; but all the metals are altered, both as to their fusibility and volatility, when alloyed.

**Oxidability.**—The order in which metals oxidise, I find to be nearly according to the numerical value of their chemical equivalents, or their capacity for oxygen. It stands thus—

## METALS PROPER—NOT VOLATILE AT ORDINARY TEMPERATURE.

| Manganese—equivalent number | 28  | Oxygen | 8 |
|-----------------------------|-----|--------|---|
| Iron                        | 28  | "      | 8 |
| Cobalt                      | 30  | "      | 8 |
| Nickel                      | 36  | "      | 8 |
| Copper                      | 64  | "      | 8 |
| Silver                      | 110 | "      | 8 |
| Gold                        | 200 | "      | 8 |

## VOLATILE METALS.

| Arsenic—equivalent number | 38  | " | 16 |
|---------------------------|-----|---|----|
| Zinc                      | 34  | " | 8  |
| Antimony                  | 44  | " | 8  |
| Tin                       | 58  | " | 8  |
| Lead                      | 104 | " | 8  |

## SEMI-METALS.

|                          |    |    |
|--------------------------|----|----|
| Sodium—equivalent number | 24 | 8  |
| Potassium                | 40 | 8  |
| Carbon                   | 6  | 8  |
| Sulphur                  | 16 | 16 |

Of the correctness of the latter arrangement, any person may satisfy himself by procuring a reguline alloy of manganese, iron, cobalt, nickel, copper, and silver; or gold, with sulphur, or arsenic, to produce a fusible mass. If he place a small bead of this, about the weight of one grain, on a support of charcoal, with a little borax before the oxidating flame of a blow-pipe, he will find that the first glass or so is tinged with a hyacinth hue—the colour which the peroxide of manganese imparts. So soon as the greater part of the manganese has been fluxed out of the bead, the next series of glasses will be found coloured bottle green, which is produced by peroxide of iron; but manganese, possessing an equivalent number so nearly equal to that of iron, also enters into this series of glasses in the state of protoxide, which, however, giving a colourless glass, does not affect the colour imparted by the peroxide of iron. The third series of glasses will be coloured deep blue, as long as there is any cobalt contained in the bead. The fourth series, a reddish brown, so long as nickel is present. The fifth, grass green, by copper; and, lastly, the copper being entirely eliminated, the succeeding glass will be colourless, since gold and silver do not oxidise by these means. It may, perhaps, take two, three, or more pieces of borax, each about double or treble the size of the bead, to the separation of each metal. As soon as one colour is observed to be changing into the next, the bead should be well cleansed from the old glass, by immersion into water whilst hot, and a fresh piece of borax added; by these means will be obtained a regular series of glasses, coloured by the different metals respectively. There are but few deviations from the order I have just described, in which the metals are absorbed by the glasses under the action of the flame of the blow-pipe. One of them, and I cannot account for it, is manganese, which can often be traced by the humid process along with the nickel, and this even after all the iron and cobalt have been fluxed out. But the mode of treatment with the blow-pipe is not applicable to the volatile metals—sulphur, arsenic, zinc, antimony, lead, and tin—which are met with more or less in the alloy, through many of the stages of the operation; and this I account for by supposing that these metals, in consequence of their volatility, rise in the current of air, and become immediately oxidised—a state which, probably, they enter earlier than they would, did they not possess that property. Antimony and tin are so far subject to the same laws as the non-volatile metals, that they are seldom found beyond the point at which the fluxing out of the nickel is completed; but are given off in all preceding stages. Lead, in consequence of its volatility, occurs in the earlier stages of the operation; but, owing to its low equivalent of oxygen, it is found with the copper, more or less, after disappearance of the inferior metals. Sulphur and arsenic, being the two mineralisers, will be found in all stages during the treatment—both having a great affinity for all the metals, forming with them chemical compounds, as sulphurets and arseniurets. The only method of separating these by fire, is by taking advantage of their volatility. There are I am aware many objections which may be urged to the theory, that the order of oxidability, and the capacity of metals for oxygen, are synonymous; nevertheless, as a law, it is one with few exceptions; potassium, however, is one. Perhaps such few exceptions as do apparently exist may be accounted for by some of your numerous talented correspondents. From the phenomena exhibited in the blow-pipe process, as detailed above, it may be inferred as a corollary, that the inferior metals reduce the superior, or those metals which have a less affinity for oxygen, and precipitate them from their solution in glass. Thus, metallic iron, or manganese, will reduce oxide of cobalt; cobalt, oxide of nickel; nickel, oxide of copper; and copper, oxide of silver or gold—that is, the oxide of any metal is reduced by any one of the metals which are inferior to it. The universal reducing property of carbon is owing to its having a greater affinity for oxygen than any of the metals possess.

Availing myself of the preceding particulars, and of an acquaintance with some practical details, I conclude that the following is one of the best methods known for the smelting of copper ores.—Let those ores which are difficult of fusion without previous roasting, be separated from those which easily fuse without that operation. Let the former be slightly calcined, or burnt in a heap, as at Anglesea, sufficiently to render their matrices fusible; then mix the ore thus roasted with the latter (in such proportions in regard to richness, that the regulus produced when smelted shall contain from 20 to 25 per cent. of fine copper, and 80 to 75 per cent. of impurities, as iron, sulphur, &c.), and run the mixture down with any suitable flux, if the addition of such be necessary for its fusion. The regulus thus produced should be watered, whilst hot, with a tolerably strong solution of soda ash—the water causing it to slake into a fine powder, whilst the soda is productive of much advantage in the next melting. The slaked regulus, in its finely-divided state, must then be roasted, until all the sulphur and arsenic are volatilised, and the metals are completely oxidised. The addition of a little carbon at this stage is useful, as it reduces any sulphates that may be formed; which objects are thus much more readily achieved than if the ore were roasted in its crude state and in lumps. As I have before remarked, to bring the ore to a fine powder by grinding would be more expensive than adopting the two foregoing operations, which also affect the quality of the copper produced. The roasted pow-



der obtained may then be treated according to the process of MM. Rivet and Phillips—viz., by fusing the same with a suitable quantity of anthracite coal, and a proper proportion of any suitable flux or slag from the first smelting operation; then finish with iron (this is not necessary, if care has been taken not to add too much carbon, which has the effect of reducing the inferior metals; indeed, as I have before stated, the iron also will reduce cobalt, nickel, and tin, if they be present, care should therefore be taken that it in like manner be not used in excess); the copper now produced is fit for the finery furnace—indeed, in some cases, but little refining is required to bring it to the proper pitch.

The next operations are refining and polishing, the object of which I consider to be the separation of the last portions of lead and iron, and the bringing of the molten mass to that point at which no oxide of copper on the one hand, and no carbon on the other, shall remain combined with the fine copper—in short, the bringing of it to as high a state of purity as possible. To accomplish this, about five tons of the impure copper is piled up in pigs in the finery furnace, and are subjected to the united action of heat and air for about 16 hours, at a temperature below the melting point of copper. By this means is driven off all the remaining sulphur, some of the copper is superficially oxidised, and any iron that may still remain partially so. The heat is then raised until the whole is in fusion, in which state, since the inferior metals reduce the oxides of the superior, if any of the former be present, they become oxidised at the expense of any oxide of copper which may have been formed, and appear, united with any undecomposed oxide of copper, as a slag, on the surface of the molten mass. From all that has been said, it will appear that as long as metallic iron is present, oxide of copper cannot be formed, and, therefore, will not exist in the molten metal; but metallic lead may. The appearances, therefore, of oxide of copper at the surface in the slag (which then looks red) is a proof that all the iron and the other inferior metals have been eliminated. Every particle of dross should now be removed from the surface, otherwise the oxides of the inferior metal, of which the same is formed, will be reduced by the subsequent operation of polishing, and will alloy with the copper, to the great detriment of the latter. If, after removal of these, any lead still remains in the molten mass, a little of which is of no detriment, as, by its volatility and consequent oxidation, it forms a fusible glass, which carries off the oxides of the inferior metals more easily; but after the oxides have been removed, as before mentioned, if any lead still remain it should be carefully expelled, by continuing the action of the heat and air; this causes it to volatilise and oxidise together with a portion of copper; a second slag is thus formed, which also must be carefully removed; this, together with the former slag, can be passed again through the second smelting operation. The whole of the lead having been removed, the copper will still be alloyed with a portion of its oxide, giving it a red appearance and crystalline texture. To correct this, billets of dry wood are thrown into the fluid mass, which is also stirred up with dry birch poles; ebullition ensues, caused by the disengagement of the oxides of carbon; this operation is continued until the oxide of copper alloyed is entirely reduced, an effect which is indicated by the appearance of the fracture. This should be rather close, silky in its texture, and of a light reddish flesh colour. Care must be taken that this operation be not continued too long, or the copper will pass over to the opposite extreme, and become alloyed with the carbon. In this event, the surface of the fluid acquires a bright glassy appearance. It may be corrected by further exposure to heat and air. The copper is no sooner oxidised by the action of these, than it is deoxidised by the alloyed carbon, and is thus reduced to a proper pitch. When this is arrived at it must, by means of ladles, with all speed, be poured into moulds suitable for the market.

In conclusion, I beg to remark, that the preceding particulars are not intended to be put forward as containing any idea that is in itself new; perhaps each one may have been made to assume a definite form, and acted upon already. I do not, however, recollect ever having met with the same combination of operations, or seen a right explanation of the rationale of the art of copper smelting. It may be said I have impaired the process of MM. Rivet and Phillips, inasmuch that I have introduced two extra operations. I think, however, on an impartial examination, it will be found that the advantages gained by the addition are more than commensurate with the disadvantages. With respect to the operation by means of which all the sulphur and arsenic are expelled at one roasting of the slaked regulus, I think it will be found a great advantage, inasmuch that, by the present processes, they make one or more inferior qualities of copper; and I think that, by the foregoing mode, every particle of copper can be reduced to the state of "best select."

As the operations are at present carried on, the first calcination being partial, only part of the arsenic contained (and that metal is generally present) is driven off; in the next smelting, the remainder, uniting with a portion of the copper which is desulphurised, subsides with the regulus, which at present forms the tough cake; and as it has a very great affinity for metallic copper, cannot be separated by any subsequent operation; hence the superiority of the copper formed from the top layer—it being a pure sulphuret of the metals, free from arsenic.

Birmingham, Oct. 30.

#### COPPER SHEATHING.

Sir,—I am unwilling to let the sheathing question sleep, although your last paper calls for nothing from me, but thanks to Mr. MURPHY. Copper filings I don't think quite satisfactory; but hope, when time serves, to repeat the experiment with copper foil; and report the result. "SMELTER AND REFINER" says, that the "best copper" made in the neighbourhood of Swansea, is refined from "pimped copper." Upon this two questions arise—1st. Is not pimped copper the highest pitch of roasting now practised there? "A ROASTER MAN" said, not that the blistered pitch is generally used, but that the refinery furnace was intended only for blistered copper. 2d. The best copper for the market; even purest and best for most purposes, may be not the best for sheathing. It was shown in my 3d, that different kinds of impurity are best adapted for specific purposes; and it appears, from the authority of "GERMANICUS," that the Norway copper, brought forward by cold acid reaction, makes better sheathing than that which is brought on by hot reaction in the melting furnace. This it is likely has to do with the metallic impurities remaining, which Mr. Stromeyer's analyses may explain.

Plymouth, Nov. 2.

#### SMELTING OF BRITISH COPPER ORES.

Sir,—Free trade, and no monopoly, is now the order of the day; to commence a system with carrying it through is sure to create confusion, and cause disappointment. The system of free trade is now become so general, and its benefits so apparent, in many instances, where the details have been carried out, that it is wrong to imagine that the British copper mining interest will suffer by the free importation of foreign ores; but the miner must exert himself to meet the new state of things—the old system must be amalgamated with the new. The monster smelting establishments in Wales will continue to flourish; let the copper trade be free, or a monopoly, Britain will become, as it nearly now is, the smelting-works for the world. There is no doubt but that shortly the ore market will be overstocked with the produce of foreign mines, and, as a natural consequence, the British miner must either submit to a reduction in price for his ore, or reduce his workings—perhaps both; but as the price of copper falls, the demand will increase; copper will be used for purposes for which it is now found too expensive, and an impulse will be given to the trade instead of a depression. But the miner must take care of himself, and not divide profits with the smelter, but add them to his own. At what price would iron now be, if manufactured on the same system as copper? An iron-master is not only smelter and manufacturer, but collier and miner—all combined in one establishment, under the same management; but with copper, how many share profits from the raw ore to the manufactured copper? and these might all be added to the miner's profit, if he would smelt his ores himself. To carry out this beneficially, it would not require large capital to commence, but capital might be added (by other mines joining) after the nucleus was formed. The step for miners to take appears to be, for the shareholders of several mines to form a smelting company, each mine to hold a certain share, according to the capital it subscribes; or other capitalists might also take shares. Let all the ores raised by these mines be sent to the smelting-house, and paid for at the value, according to the assay; each mine would then receive the same price for its ores as if sold at a ticketing, and the smelter's profit would, at certain periods, be divided amongst the mine shareholders; but should the price of ore be so low as to leave no profit to the miner, he would still have the smelter's profit, and the mine would continue to be worth working to ensure this. The situation of the smelting-works, and the fuel to be used, are questions to be decided by the locality of the ores to be smelted. There are, doubtless, many situations in Cornwall and Devon far preferable to Wales, from the inexhaustible supply of fuel in those countries, as

it is a known fact, that a ton of peat, properly dried, without any other preparation, will produce nearly the same effect in a reverberatory furnace as a ton of coal. Dried peat is, in many reverberatory furnaces on the continent, the only fuel used; and it is, therefore, no theory to propose to use a fuel which, although new to many, is so well known, and extensively and profitably used by a few. A smelting-works may, therefore, be established in Cornwall or Devon, with as much certainty of success, dependent for its fuel from a turf moor, as in Wales, from a coal-pit.

Llandilo, Oct. 31.

#### THE COPPER AND SMELTING TRADES.—No. II.

Sir,—In my former letter, which appeared in your Journal of the 21st of last month, I gave a statistical history of the copper mines of Cornwall, together with a few remarks on them, and on some of those of Ireland. I think it right to resume the latter part of the subject, and to enter a little more into detail on it, because I fear that the value and importance of the Irish mines are not sufficiently known and appreciated. I shall be very glad if I can do anything to ameliorate the condition of that unhappy country, by directing the attention of the enterprising capitalist to the mutual advantages that may be reasonably expected to result from a more extensive development of her mineral resources.

I have already adverted to the mines in the Wicklow district, but there are a few more particulars which I consider worth giving you. The mines in this district are as follows:—The Ballymurtagh, belonging to the Wicklow Copper Mine Company; the Ballygahan, belonging to Mr. Henry Hodgson; the Cronebane and Tygrone, belonging to the firm of Messrs. John Williams, jun., and Brothers, of Truro, Cornwall; and the Connoree, belonging to the Connoree Mining Association. I believe there are two others, but their names I do not know. Those I have mentioned are all situated in the vale of Avoca, and within a space of two miles. It is stated in the Appendix to the First Report of the Children's Employment Commission (published in 1842), that at none of these mines are either females or children employed, and but very few young men under 18 years of age. It is also stated, that there is comparatively very little copper ore obtained from them, in consequence of nearly all their men being employed getting the sulphur ore, which lies much nearer the surface, and is consequently more readily obtained, and for which there is also a very great demand. There were also at that time 500 to 1000 cars daily employed carting this ore to the ports of Arklow and Wicklow, and a vast number of coasting vessels and fishing boats employed conveying it from thence to Dublin for shipment. On referring to the public sales at Swansea, I find that the total produce of the mines of this district (as far as these sales indicate it) has not materially fallen off since 1842; while in three of them there has been an increase. There does not appear any sales from Connoree last year; but with regard to this, as well as the others, I may repeat what I said in my last, that a considerable quantity of Irish ores is now sent to Liverpool, and other ports, to be smelted, which accounts for their apparent decrease in the sales at Swansea. I take the following from the public sales in Grylls's Annual Mining Sheet, made up to the 30th of June in each year:—

| Mine.             | 1843. | 1844. | 1845.  | 1846.  | 1847.        | 1848.             |
|-------------------|-------|-------|--------|--------|--------------|-------------------|
|                   | Tons. | Tons. | Tons.  | Value. | £ s.         | Av. price p. ton. |
| Ballymurtagh..... | 906   | 1232  | 1319   | 186    | 4212 6 0     | £3 19 6           |
| Cronebane.....    | 674   | 1008  | 3338   | 16     | 3874 18 0    | £10 6 3           |
| Connoree.....     | 751   | —     | 2299   | 1      | 6 — 0        | £3 1 0            |
| Tygrone.....      | 363   | 377   | 1700   | 3      | 0 1496 8 0   | £4 13 6           |
|                   | 2692  | 2617  | 10,533 | 4      | 6 29584 12 6 | £4 1 1            |
|                   |       |       |        |        |              | £3 15 0           |

I showed you in my former letter, that, in 1843, the Ballymurtagh Mine alone yielded 6555 tons of copper ore, besides a large quantity of iron pyrites; but that only a very small portion was sent to Swansea. You will observe that the average price per ton has fallen; but I think this is easily accounted for by the low standard which has existed for some time. I have no means of ascertaining how much copper is contained in the ton of ore obtained from these mines; but I find that, at the commencement of this century, that from Cronebane yielded 9 per cent., which fell in 1811 to 5½ per cent., and that after this period very little ore was raised for many years. In 1826 the Ballymurtagh Mine yielded ore of 5½ per cent. produce, at the depth of 80 fms. In the Ballygahan Copper Mine very little copper ore is raised; it has been principally worked for sulphur ore. Indeed, I believe that the sulphur trade, which proved so lucrative and so beneficial to this district, and which commenced in 1840, withdrew capital in a great measure from copper mining.

The most extensive mines in Ireland are the Knockmahon, belonging to the Mining Company of Ireland. They are situated on the sea coast, close to the village of Bonmahon, and about 16 miles from the city of Waterford. This district has been long known for its mineral treasures, many of the metalliferous veins having been worked by the ancient inhabitants. Kane states, that one almost insulated promontory is perforated like a rabbit burrow, and is known as the Dane's Island, and that the peasantry attribute these ancient mines, like all other relics of remote civilisation, to that enterprising people.

He further observes that, in the abandoned workings, antique tools have been found—stone hammers, and chisels and wooden shovels. These workings (he says) were easily carried out, as the metalliferous veins presented themselves at the face of the cliffs on the sea-shore; and they were abandoned as soon as, by the accumulation of water, or an exhaustion of the richer ores, they became difficult to manage. The principal vein is stated to vary in width, from 6 in. to upwards of 30 ft.; but that the average is probably from 10 to 12 ft. This is an unusually large lode. Grey sulphuret of copper, native copper, and the red oxide of copper, are said to occur occasionally in the shallow workings, but in comparatively small quantities; and, in the deeper levels, the only kind of ore found is the yellow pyrites. The average per centage of the produce is, I believe, 9½ to 10 per cent. In 1845, the greatest depth was worked about 800 ft. from the surface; and the greatest length of the underground operations was rather more than an English mile in a direct line; at the same time, the number of persons employed was about 1200.

The following are the particulars of the annual public sales of copper ore from the Knockmahon Mines, at Swansea, for the last 12 years:—

| Year ending June 30. | 21 cwt. | Value.       | Av. price per ton. |
|----------------------|---------|--------------|--------------------|
| 1837                 | 3730    | £30,832 11 6 | £8 5 3             |
| 1838                 | 6345    | 53,561 10 0  | 8 8 9              |
| 1839                 | 7790    | 62,006 7 6   | 7 19 2             |
| 1840                 | 6823    | 50,919 19 0  | 7 9 3              |
| 1841                 | 8455    | 72,301 15 6  | 8 11 0             |
| 1842                 | 7614    | 59,887 14 0  | 7 16 0             |
| 1843                 | 8350    | 61,002 15 0  | 7 2 0              |
| 1844                 | 9351    | 67,318 19 0  | 7 4 0              |
| 1845                 | 7634    | 49,767 18 6  | 6 10 6             |
| 1846                 | 6458    | 44,546 19 0  | 6 18 0             |
| 1847                 | 4635    | 29,402 9 0   | 6 7 0              |
| 1848                 | 5947    | 28,289 7 0   | 5 12 0             |

It must still be recollected that, from the cause I have already mentioned, these returns of the public sales do not indicate the actual yield of the mines. It will be seen, from the above statement, that the average price per ton is above that of the total of the Cornish mines—the latter being, last year, only 5l. 6s.; and the difference is considerable in the same direction in all the preceding years.

The next copper mine of importance in that country is the Berehaven, formerly called the Allihies Mine. It belongs to L. Paxley, Esq., and is situated in Ballydonegan Bay, near Castletown, county Cork. There are about 1140 persons employed; and four vessels, with a crew of 52 people, are engaged in conveying the produce to Swansea. The lode is stated to be 60 ft. wide in one place; but branches and narrows in other places to 3 or 4 ft. The usual quality of the ore is found to be as follows:—

|         |         |
|---------|---------|
| Copper  | 10.2    |
| Iron    | 10.8    |
| Sulphur | 14.8    |
| Quartz  | 63.9    |
| Loss    | 0.3-100 |

I believe that the ore raised varies from 10 to 15 per cent.; and, in 1837, the average annual produce was given at 6000 to 7000 tons, valued at 9l. per ton. The following are the particulars of the annual public sales at Swansea for the last 12 years:—

| Year ending June 30. | 21 cwt. | Value.      | Av. price per ton. |
|----------------------|---------|-------------|--------------------|
| 1837                 | 5814    | £29,502 9 6 | £10 4 8            |
| 1838                 | 4576    | 43,436 0 6  | 9 9 10             |
| 1839                 | 4886    | 43,358 7 0  | 8 17 6             |
| 1840                 | 5319    | 45,999 15 0 | 8 12 11            |
| 1841                 | 4781    | 44,518 3 6  | 9 6 0              |
| 1842                 | 4709    | 42,652 8 6  | 8 15 9             |
| 1843                 | 4694    | 39,120 6 0  | 8 6 6              |
| 1844                 | 4753    | 37,614 2 0  | 7 18 6             |
| 1845                 | 5829    | 39,403 1 0  | 7 9 0              |
| 1846                 | 5603    | 42,776 15 6 | 7 19 6             |
| 1847                 | 6025    | 44,939 9 6  | 7 9 0              |
| 1848                 | 5829    | 38,946 10 0 | 6 13 6             |

The Kenmare Copper Mine is worked by the Kenmare Mining Asso-

ciation, and is situated about four miles from Kenmare, county Kerry. Operations were commenced here only in the year 1841. The following are the particulars of the public sales:—

| Year ending June 30. | 21 cwt. | Value.     | Price per ton. |
|----------------------|---------|------------|----------------|
| 1841                 | 208     | £3350 17 6 | £16 2 0        |
| 1842                 | 311     | 2209 14 0  | 10 9 6         |

These are the only years for which I can find any public accounts; but Kane states, that 31 tons were sold at Swansea in 1843, which brought, he adds, 275l. 18s., being 8l. 18s. per ton. The ore appears to have been very rich.

The Macruss Mine was situated near the head of the Lake of Killarney; it is not now worked, but the following interesting account, given by Sir John Kane, is worth quoting, as it proves that great mineral riches have been found to exist in Ireland, and that it only requires direct attention to such facts, to convince any one that her resources, in this respect, are not sufficiently explored. "The lode was 5 ft. wide, and was worked at the depth of 36 fms. on the front shaft, and about 20 by another, sunk some distance to the east. The ore was copper pyrites, mixed with much iron pyrites. This mine was worked with great profit from the years 1749 to 1754; but difficulties, arising from the circumstances of the European war, caused its abandonment. A curious fact in the history of this mine deserves attention. There was found, in great profusion, a mineral of a granulated metallic appearance, as hard as stone; its colour on the surface dark blue, tending to a beautiful pink. It was not copper ore; it was thrown away as rubbish—nobody knew what it was except one workman, who recognised it to be cobalt ore—a mineral of great value, from which the beautiful blue glass and small blue is made. This man managed to get away upwards of 20 tons of it as rubbish. Long afterwards a more candid miner, who visited the works, and saw some specimens of it, told the proprietor its value; but the deposit of it had been worked out, in order to explore for copper; the produce had been thrown away as useless, and it only remained for the mineowner to ruminate on the fortune he might have made, if he had possessed a proper knowledge of his business."

Another mine, not now worked, but which was, at one time, a very productive one, was situated on Ross Island, in the Lake of Killarney. It is said that it yielded, when at work, an average of 200 tons per month, and that the poorest sold for 14l. per ton, and the richest for 40l.—the average being about 20l. The total value of ore raised in four years, and sold at Swansea, is stated to have been 80,000l., and the number of people employed 500.

The Lackamore Mine is situated in the valley of the Newport river, about four miles from Newport, county Tipperary, and about 16 miles from the city of Limerick. It has been long known, but worked only at intervals, and is so now by the Lackamore Mining Company. There are nearly 200 people employed. I believe the ore produced is the richest in Ireland. The following are the public sales since 1838:—

| Year ending June 30. | 21 cwt. | Value.    | Av. price per ton. |
|----------------------|---------|-----------|--------------------|
| 1839                 | 348     | £2696 9 6 | £10 12 5           |
| 1840                 | 411     | 3289 11 6 | 8 0 0              |
| 1841                 | 611     | 5754 16 6 | 9 8 6              |
| 1842                 | 569     | 4783 14 0 | 8 8 0              |
| 1843                 | 358     | 3171 8 6  | 8 18 6             |
| 1844                 | 212     | 2000 4 6  | 9 8 6              |
| 1845                 | 143     | 1168 19 6 | 8 3 6              |
| 1846                 | 102     | 762 5 0   | 7 9 6              |
| 1847                 | 84      | 774 4 6   | 9 4 6              |
| 1848                 | 139     | 1204 4 6  | 8 13 0             |

In Tyrone, some miles from Dungannon, a number of masses of grey sulphuret of copper have been found, of some considerable size. The ore found is said to be decidedly rich; specimens of it were pure grey sulphuret, containing 80 per cent. of copper.

At the Cosheen Copper Mine the ore was found so near the surface, as to require only opening the side of the mountain, and has been worked with a level only. It was discovered, I believe, in 1838, but not worked until three years after. The ore has been very good, as will be seen by the following public sales since its commencement, up to 1846, after which it ceases to appear in the public lists:—

| Year ending June 30. | 21 cwt. | Value.    | Av. price per ton. |
|----------------------|---------|-----------|--------------------|
| 1840                 | 71      | £731 6 0  | £10 6 0            |
| 1841                 | 318     | 2999 13 0 | 9 8 6              |
| 1842                 | 303     | 2742 15 0 | 9 1 0              |
| 1843                 | 232     | 1964 3 6  | 8 9 6              |
| 1844                 | 445     | 2456 1 6  | 5 10 6             |
| 1845                 | 412     | 3438 18 0 | 8 8 0              |
| 1846                 | 56      | 1089 12 0 | 19 9 0             |

I have now, Sir, given you a brief account of the principal copper mines in Ireland. Sir John Kane, who writes in 1845, is of opinion, that the total quantity of copper ore raised in that country approximated then closely to 25,000 tons per annum. I believe there is no means at present of knowing the accurate amounts raised, but I would take this opportunity of suggesting that every mining company, both in England and Ireland, should send the Mining Journal an annual statement of the produce of each mine, made up to the 31st of Dec., and showing, besides the quantity of ore, its produce of copper, and the amount of money received for the ore—a somewhat similar statement, in fact, to those issued weekly by the railway companies. I think you might draw attention to this recommendation in one of your leading articles. Its adoption would form very interesting and useful information. The following are the total annual public sales of Irish copper ores at Swansea for the last 12 years, as far as I can collect them. I have also given the average annual price of Cornish ores for the same years:—

Particulars of Irish Copper Ores, sold at Swansea, from 1837 to 1848 inclusive, with the Average Price of Cornish Ores for the same years:—

| Year ending June 30. | 21 cwt. | Value.        | Av. price per ton. |
|----------------------|---------|---------------|--------------------|
| 1837                 | 20,436  | £130,823 11 6 | £6 8 9             |
| 1838                 | 22,706  | 139,568 4 0   | 6 2 11             |
| 1839                 | 22,290  | 143,447 11 6  | 6 8 8              |
| 1840                 | 23,412  | 135,293 1 0   | 5 15 6             |
| 1841                 | 16,538  | 137,442 0 6   | 8 6 2              |
| 1842                 | 14,080  | 115,570 15 6  | 8 6 1              |
| 1843                 | 16,923  | 115,791 16 6  | 7 0 0              |
| 1844                 | 19,385  | 127,898 3 6   | 6 12 11            |
| 1845                 | 18,597  | 113,566 8 6   | 6 2 1              |
| 1846                 | 17,264  | 110,169 6 0   | 6 7 7              |
| 1847                 | 14,463  | 88,760 18 0   | 6 2 8              |
| 1848                 | 14,564  | 78,024 14 0   | 5 7 2              |

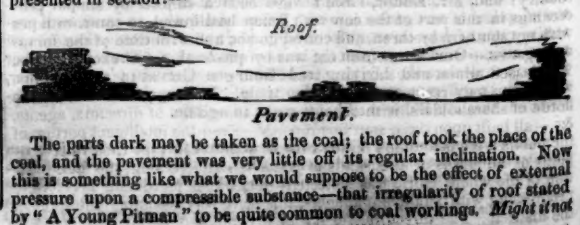
It appears, therefore, that the average price of Irish is above that of Cornish copper ores—a fact which should encourage the miner and capitalist to still further explore the mineral resources of Ireland. The apparent decrease in the produce, as indicated by the above, I have already accounted for. I think, Sir, this letter has attained a length that will render it necessary for me to postpone the consideration of the colonial and foreign copper mines to my next communication.

London, Nov. 1.

#### PRACTICAL MINING—"HITCHES."

Sir,—I am happy to observe, that the question proposed by me some time ago, regarding hitches, has been noticed by a correspondent, who, from his signature, may be expected to know something of them. I may here remark, in answer, the under seam was wrought out to the entire crop; and your correspondent may depend upon it, had there been a probability of the slip appearing in the under seam, I would scarcely have made a question of it in the Mining Journal.

Hitches are generally supposed to be the effect of internal pressure; but it never appeared to me that the hitch in question, 2 fathoms, seen in an upper, and not in an under, seam, could be produced from external pressure. "Nips," as they are termed, I would say, are the effects of external pressure; but a nip is quite a different affair from a slip—in the one case, we have a complete dislocation, and, in the other, visible effects of pressure upon the strata, when in a different state from what it is at present. Lately I had an opportunity of observing mines driven in various places through an extensive nip of some acres. And in all cases the pavement kept its place nearly—a thin vein, or parting, always dividing the roof from the pavement, and no apparent dislocation of roof or pavement. The annexed sketch gives an idea of the general appearance it presented in section:—



The parts dark may be taken as the coal; the roof took the place of the coal, and the pavement was very little off its regular inclination. Now this is something like what we would suppose to be the effect of external pressure upon a compressible substance—that irregularity of roof stated by "A Young Pitman" to be quite common to coal workings. Might it not



be in that state, and not more pressure upon it at that point, than at any other where the seam appears regular?

The same sort of irregularity is very often seen in the pavement of the ironstone workings along the coast in Ayrshire, Scotland (and by the men termed steps, which is very expressive), and it does not follow that a ridge of that sort in the pavement is the same in the roof, which would induce me to venture an opinion—may the pavement of the ironstone not have been deposited in that way? In observing the washings of sand along the sea-shore, or a large river, there are evident ridges—we have not a plain surface; then, if we suppose that sand covered at some distant period, the same irregularity of pavement must appear, should it happen to be opened similar to the above ironstone working referred to.

N. B.

#### IRON AND ITS VARIOUS CONDITIONS.

Sir,—In reply to Mr. Mushet's letter of the 23d inst., which appeared in last week's *Mining Journal*, I must explain that the cinder I alluded to in my former letter is not the cinder from blast-furnaces, but the cinder which forms during the operation of puddling. Some time ago I proposed, in a limited circle of parties connected with the iron trade, amongst whom I associated, to apply a new term to this species of cinder, by way of distinction—cinder being a general term applied to all waste, or refuse, about iron-works. I regard this cinder as a combination of iron, oxygen, and carbon, and I proposed to call it carb-oxide of iron. Chemists will say, that the term proto-carburetted of iron would be more proper; but, to my mind, that hardly defines the peculiar combination which I fancy exists here as a carbonised oxide of iron. Some few months ago, I addressed a letter to you, detailing the circumstances which first suggested to me the idea of pure metallic iron. I should, at this time, have sent a copy of that letter, to assist in my present explanation, but have not my papers by me just now. I think it cannot be disputed that bar-iron possesses, or should possess, a fibrous texture. When a bar of iron is knicked, or partially cut through, and then, while cold, bent quite back, the fibres are plain to the naked eye. A piece of bar-iron, macerated in dilute acid for a time, has the appearance of a bundle of fibres; the cinder being more soluble than the pure iron, dissolves first, leaving the latter in the form of fibres. It appeared to me, that iron must absorb both oxygen and carbon from the atmosphere of a puddling-furnace; having taken up a certain quantity, part of the iron passed into cinder, and separated itself from the remainder, then in the state of pure metal; this is gathered up into a ball—a porous sort of mass, which may be compared to a sponge, having the pores filled with melted cinder. The latter appears to be fusible at a high heat, very adhesive and tenacious at a heat a little below fusion, but hard and brittle at a low temperature, or when cold. The presence of this cinder, during the operations of the mill and forge, keeping the metallic portions separate, seems to me the cause of the formation of the fibres in bar-iron; I regard this cinder as the essential principle of welding. When two pieces of iron are brought to a high heat in a smith's fire for this purpose, they become coated with a thin glaze, brought together and hammered they unite. When iron is kept too long exposed to the blast in a smith's fire it burns, and when withdrawn, fused drops fall from it, which are cinder—the oxygen of the blast and carbon of the fuel having both combined with the iron. I consider the presence of this cinder renders bar-iron stiffer when cold, but more pliable when hot. In a letter I have alluded to, I state that pure metallic iron is not the result of any direct operation in the present manufacture of iron, the nearest approximation being the sheets prepared for tin plates, which is arrived at by a long and expensive routine of operations, and the waste of a large portion of the metal. Mr. Mushet must be aware that tin plate iron is extremely red short, so much so, that it would be difficult for any smith to mould it into a small article requiring much bending and working. A good smith can certainly make good work with almost any fuel and any sort of iron, but he does this by the loss of much time, and the unprofitable application of much skill and ingenuity in humouring both—in fact, it is tantamount to re-forging the iron.

The quantity of cinder which I conceive necessary to form bar-iron, in the light I view it, is only a very small proportion of that constituting the pure metal; and, again, the proportion of oxygen and carbon to the iron in the cinder, I conceive to be small—so that the actual quantity of oxygen and carbon in bar-iron will be a mere fraction, scarcely appreciable. Still I am disposed to entertain my notion, which I have no doubt most practical men will regard as too fanciful, that bar-iron is a mixture of two forms of metal—the one pure as fibres; the other, a compound. A great variety of circumstances has led me to this conclusion; if erroneous, I am desirous of being set right. I am glad my remarks have attracted the notice of Mr. Mushet—a gentleman possessing so much practical knowledge and experience. His observations will always have my most serious attention.—T. H. LEIGHTON: October 30.

#### BLAENAVON AND ITS CAPABILITIES.

Sir,—From a cursory perusal of a number of letters, inserted in your *Journal*, in reference to the Blaenavon Works, most of them from shareholders, I find they invariably arrive at the same conjectural conclusion—that all is lost, and that their misfortune can only be attributed to the lukewarmness and mismanagement of the directors. To counteract such unfavourable impressions would require, perhaps, more persuasive reasoning than I can offer, though I think a mistaken policy may have something to do with it. I believe it is the opinion of most practical men connected with the iron trade of the country, that Blaenavon, as an iron-works, is suffering from want of more energetic measures being carried out in the development of its resources. There is a restricted trade, principally confined to the sale of pig-iron; to ensure which the quality becomes the paramount object—consequently, the materials are chosen and selected at an additional expense to what they would be for manufacturing iron for general purposes. This system of doing business upon a small scale, with a heavy capital and low price of iron, will, most assuredly, frustrate the designs of the managing committee; whilst giving them credit for honesty of purpose, the soundness of their views may be reasonably questioned. One of your correspondents states, that 80,000L. would be the most likely sum required, to give them the same advantage as their neighbours; 60,000L. added to the present capital, and expended in the erection of a forge and mill, and to complete the new works, would, most assuredly, alter their present position. It would enable them to double the quantity of iron manufactured, and more than double the profits. The new works are surrounded with minerals, and a large quantity of them drained; pits sunk to the depth of them, to the lowest seams of coal and ironstone, and the upper beds would be all crossed by drifts from the present drainage. One of your correspondents, more wise than the others, tells us the works are placed out of the reach of water. That the Blaenavon Works are better supplied with water than most of the works on the hills, was tested by the last dry summer, and flatly denies that assertion. If the new works were completed, as above stated, and the intended branch of railway up from Pontypool forming a junction with the Newport and Pontypool, every disadvantage would be removed; and by continuing that branch a quarter of a mile beyond the works, a colliery could be opened in the upper seams of coal for the Newport trade. The reduced rate of tonnage would then enable them to realise a considerable profit on coal, to the amount of many thousands per annum, and would pay the interest on the 60,000L.; and, 20 or 30 years hence, the Blaenavon Works would appear, in their last-day glory, a large flourishing iron-works; whilst the possession of the neighbouring works would be by no means enviable.

The British Company drove into the hill westward, would have to struggle on, with an enormous outlay on the production of its minerals.

A SOUTH WALES COLLIER & SMALL SHAREHOLDER.

Blaenavon, Oct. 30.

#### JOINT-STOCK COMPANIES.

Sir,—Your late *Journals* have contained much interesting matter relative to the management of the Blaenavon Coal and Iron-works, the Cameron Steam Coal Company, and other jobberies in different parts of the country; and, Mr. Editor, since I have been a sufferer by similar proceedings in this part of the country, I may be allowed to compare notes with my southern brethren, and convey to you a short outline of the doings amongst us.—Our commencement was by means of a few choice spirits, who leased mines, and then procured flaming reports as to their profits, which, you may rest assured, were not a little flattering. Then came the horde of shareholders, with the necessary appendage of directors, agents, &c.—all built upon these spurious reports. Even the intelligent portion of the public were astounded at the success with which they thus raised capitals of hundreds of thousands of pounds; but, ere long, the false position of the whole fabric was detected—for, whilst legitimate firms were progressing with suitable managers, this body was becoming the sport of the district. The directors, for instance, composed of farmers, lawyers,

stockbrokers, &c., once invested with supreme power, assumed to themselves the province of viewer, tiler, and agent, from whom was taken all discretionary management—for they were made to cater to the prejudices of their lordly masters. If a functionary knew his duty, and felt ambitions to conduct matters for the advantage of the concern, he was at once pounced upon as an assuming aspirant, and was made to understand that his paramount duty was to sink his own judgment, and implicitly to obey these mimic managers.—“We are responsible to the company, and you have nothing to do but to obey us.” Thus an intelligent understanding agent was either to subjugate his own judgment to such a contemptible ordeal, or he was, without further ceremony, to quit the concern—in which case, his place was filled either with some inexperienced youth, or some favoured passive instrument, who agreed to submit to the required condition.

The board have it now their own way—public meetings and public reports cease—till at length the shareholders are given to understand that in addition to their lost capital, a call is made upon them. This, indeed, arouses reflection; but how can they help themselves? The directors have contrived to secure a majority in any public meeting, be the question what it may, and thus deter the shareholders from moving. In the meantime, the directors have certain matters to job; they want either to buy shares or to sell, and their manager must needs get up suitable reports. If he resists, he is aware what is to happen; the jobbing, therefore, goes on, and many a poor widow and incautious person is thus reduced to the strait of adding to their losses, or of forfeiting their shares.

Such, Mr. Editor, are a few of the crying evils of the joint-stock system; and the blame rests with the shareholders individually, who do not possess themselves of the reports of disinterested persons at the commencement, nor encourage the employment of upright persons for its conduct—for if any independent conscientious functionary should dare to expose the mismanagement or dishonest practices of the directors, by advising an investigation, instead of cherishing and supporting him, they abandon and permit him to be worried down by the accumulated influence of the jobbers. Hence few men are found to undertake the unprofitable task of appraising the shareholders of a company of their approaching ruin.

At length, matters arrive at a crisis—inquiry is forced upon the directors—but they contrive to nominate either a committee of shareholders who are willing to garble the report, or who are so utterly ignorant of the nature of the work as to become lost under the conflicting testimony of agents, and, consequently, their report becomes valueless. However, matters can now go on no longer, and a sale must take place to the highest bidder: when, perhaps, some observing persons, well aware that the overruling cause of failure has been mismanagement, succeed to a good bargain. Such, undoubtedly, is the progress and termination of many undertakings, good in themselves, but destroyed by lavish expenditure and other mismanagement, and may be generally set down to the improvident power with which directors are invested, who are, in many cases, ignorant of the subject, and, in others, warped by private interests, antagonistic to those of the company.—X. Y.: *Newcastle-on-Tyne*, Nov. 1.

#### PRACTICAL MINING.

Sir,—The practice of raising water from mines by means of barrels, in the absence of pumps, seems to suggest the importance of having some contrivance attached to the machinery, to denote the number of barrels drawn per hour. The necessity for which is obvious, more especially when there is much water to contend with, and the engine required to work nights. It would be equally advantageous where minerals are raised, by showing the quantity produced. Perhaps some of your readers may know whether such a plan is at present in existence, or may further the attainment of so desirable an object.—EXPERIENCE: November 1.

#### NASMYTH'S STEAM-HAMMER.

Sir,—My attention was lately called to a lengthy article in your *Journal* of the 30th Sept., headed “Condie's Improved Steam-Hammer.” I should not have thought of addressing you on this subject, had not the account, by means of an impudent and truthless assertion, made a strongly unfavourable prejudice against another invention (which the account has also undertaken to describe) in the mind of my friend, and it may probably take the like effect on others. It is therein stated, that Nasmyth's hammer has failed to give that satisfaction which was expected. For some time past I have had one of Nasmyth's hammers in work, not on puddled balls of Scotch iron, as your writer has described Mr. Condie's, but in working uses of the most trying nature to a machine of the kind; and I can assure you that, so far from having failed to give that satisfaction which I had expected, it has much exceeded my most sanguine hope. I can also add, that as this instrument is expensive, I took much trouble, before I purchased mine, to ascertain from those who had them in use, within my reach, whether they worked satisfactorily, and the universal reply (for there was not one dissentient) determined me to erect mine.

It is perfectly well known, that Nasmyth's hammer is at work in each quarter of the globe, and that there are but few inventions where intrinsic merit alone has so quickly extended the use of, especially so costly, an article. Now, when it appears to be boldly asserted in the *Mining Journal* that this machine has failed to give that satisfaction which the public expected, and they who know better consider the assertion too contemptible to be noticed, there are many interested persons who, like my friend, may be led astray; therefore it is that I venture to offer you these remarks, which men of higher authority and more consequence do not condescend to make.—JOHN JAMES, Jun.: *Uxbridge Iron-Works, Newport, Monmouthshire*, Oct. 30.

#### WHITE'S NEW PATENT GAS.

Sir,—Not having seen Mr. White's letter of the 7th instant, until last Thursday, I have now to state, in reply, that my apparatus generated hydrogen freely from a small running stream of water, with very little condensation; and, as regards its practical utility, it will cost a mere trifle beyond the castings; for, if they are cast properly, a man can fix one ready for the gas-fitter in two days—one that will make gas for 30 lights, each light burning four hours per day, and will only occupy one square yard. With my small apparatus, which was only 2 ft. square, I made gas in three minutes that burned twenty, and the apparatus not quite so perfect as it might have been. I have a few tubes connected with my retorts, which I charge with iron borings; and I decompose my resin in a retort charged with fire-brick—having no mechanism in my retorts whatever, beyond the mere castings; and, if such plan will generate hydrogen freely, what can be more simple?—J. NORTH: *Rochdale-road, Manchester*, Oct. 31.

#### RIDER'S RAILWAY BRIDGE.

Sir,—I have observed in your paper, and several others, an advertisement, headed “Rider's Railway Bridge.” As the statements made in relation to it appear to be well founded, and the advantages it offers are of importance to the railway interest, it seems to me that the opinion of our own engineers ought to be had in reference to the merits of this bridge, with a view to that practical economy which is so much needed at present, and which is always so desirable in all expensive undertakings. I beg, therefore, to call your attention to this subject.

Pall Mall, Nov. 2.

A RAILWAY SHAREHOLDER.

GUTTA PERCHA.—A correspondent at Singapore says:—“The price of gutta percha has greatly varied since my arrival here; at one time it was speculated on like opium; it was shortly after my arrival at \$21 to \$22, it is now to be purchased from \$9 to \$10 per picul of 133½ pounds. They make wash-hand basins and water-jugs of it here, also buckets, riding-whips, &c.; it is an excellent material for ships' use, it is not being breakable.”

COMMON SALT.—The amount of common salt in all the oceans is estimated by Schafhaeutl at 5,051,342 cubic geographical miles. This would be about five times more than the mass of the Alps, and only one-third less than that of the Himalaya. The sulphate of soda equals 663,644-96 cubic miles, or is equal to the mass of the Alps. The chloride of magnesium, 441,811-80 cubic miles; the lime salts, 109,899-44 cubic miles. The above supposes the mean depth to be but 300 meters, as estimated by Humboldt. Admitting, with Laplace, that the mean depth is 1000 meters, which is more probable, the mass of marine salt will be more than double the mass of the Himalaya.

STEAM-BOAT BUILDING ON THE CLYDE.—We are happy to learn, that our ship-building yards and engineering establishments, which were beginning to feel the prevailing dullness, are again exhibiting symptoms of revival. Within the last few days, we understand that several important orders have been received by Mr. Robert Napier, Messrs. Tod and Macgregor, Messrs. Smith and Rodger, Messrs. Wingate and Co., and other firms, which will keep their hands in full occupation for some time to come, and give employment to many who had been discharged on account of the completion of previous contracts.

A NEW RAILWAY.—Surveyors are engaged surveying for a line of railway from Fleetwood to Lancaster, to pass a little to the west of Garstang.

ON THE ADAPTATION OF THE CAMBRIAN ENGINE TO LOCOMOTIVE PURPOSES.—A paper on this subject, accompanied by drawings, contributed by Mr. John Jones, of Bristol, was read at the Institution of Mechanical Engineers, Birmingham, by the secretary. The advantages claimed for an engine constructed on this principle are the obtaining a long stroke in the crank, without the disadvantages of a long stoked cylinder, where high velocities are required, the arrangement of the levers which balance the engine, the entire disappearance of any oscillating motion of the engine, and doing away with all centre pressure. A somewhat lengthy and interesting discussion followed the reading of this paper, in which the Chairman, Mr. Cowper, Mr. Slater, Mr. Peacock, Mr. Crompton, Mr. Humphreys, Mr. Beyer, and others took part. Considerable difference of opinion existed as to the value of the engine described. The weight of the argument, however, was against the presumption that the adaptation would be advantageous; but, at the suggestion of the chairman, it was proposed to reserve any decision on its merits until there was more information before the meeting. This suggestion was adopted, and the discussion terminated.

SPEED AND POWER OF THE NARROW GAUGE.—We have had an opportunity of witnessing the speed and power of Mr. Crompton's eight-wheeled engine. It will be recollected that this engine has an 8-foot driving wheel, 18-inch cylinder, 24-inch stroke, about 2000 feet of heating surface, and that her weight is between 35 and 36 tons in working order. The engine was attached to the 2.30 train from Birmingham. She arrived at Wolverton at the proper time, with 17 carriages, and left several minutes late. At Leighton a horse-box was attached, and the train started thence about 10 minutes late. From Leighton to Tring, 8½ miles, the gradient for nearly the whole way is a rising one of 16 feet per mile. The time occupied in running between these two stations was 12 minutes 10 seconds—that is from the time of starting until the engine entered the Tring station. The speed of the train over the second quarter of a mile, after leaving Leighton, was 25 miles an hour, and the average running speed over 7 miles of the 8½ miles was about 51 miles per hour—the maximum speed having been 53.3 miles per hour. We believe that this is the greatest performance that has ever been achieved with such a train—viz.: about 100 tons, upon the narrow gauge.—*Morning Herald*.

GUTTA PERCHA.—BOOTS AND SHOES, SOLED with this MATERIAL, being eminently non-conductors of heat, are exceedingly pleasant wear for tender feet, and however slight the soles, impenetrable by snow or salt-water—therefore, invaluable to SPORTSMEN, TOURISTS, and VISITORS to the SEA-SIDE. The idea that atmospheric heat has any detrimental effect upon Gutta Percha is a fallacy, and in no known instance have soles failed in adhering, which may not be ascribed to neglect of the company's printed directions. The more recent productions in Gutta Percha are elaborate cornices, highly enriched console tables, mouldings, panellings, picture-frames, &c., in every variety of finish and relief, desert services, flower vases, fountains, busts, urns, basins, bowls, bottles, paper weights, pen trays, &c. Tubing of all sizes, from ¼ inch to 4 inches diameter. For lining cisterns, sinks, galvanic troughs and batteries, Gutta Percha offers innumerable advantages; and, being impervious to water, unaffected by acids, alkalis, &c., it may fairly be said to be the discovery of the age.—May be had of the GUTTA PERCHA COMPANY, 18, Wharf-road, City road, and of any of their wholesale dealers.

CURE OF STAMMERING.—“Some remarkable CURES have recently been made in cases of STAMMERING, and DEFECTIVE ARTICULATION, by Mr. HUNT, of 224, REGENT-STREET, who is known to the public for the energy with which he has devoted himself to remove the defects of utterance. Several of these cures have been effected where all remedy appeared hopeless.”—*Times*, August 1, 1848.—Mr. Hunt may be consulted at the above address until the end of November, and intends resuming his residence for the season early in February next.

ON NERVOUS DEBILITY AND GENERATIVE DISEASES. Just published, the thirty-anthousandth revised and corrected, 120 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Authors, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indurated excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS & CO., consulting surgeons, 7, Fifth-street, Soho-st., London.

REVIEWS OF THE WORK. We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, *On Manhood, and the Causes of its Premature Decline*, with Plain Directions for its Perfect Restoration.—(Strange, Paternoster-row.)—This is a book replete with valuable advice and information. It dispels the fearful shadows on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine*.

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—while to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle*.

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Eva*.

Published by the authors, and may be had at their residence; sold also by Strang, 31, Paternoster-row, London; Heywood, Oldham-street, Manchester; Philip, South Castle-street, Liverpool; Robinson, 11, Greenaid-street, Edinburgh; Berry and Co., Capel-street, Dublin; and, in a sealed envelope, by all booksellers.

REMOVED TO No. 37, BEDFORD-SQUARE, LONDON.

DR. LA'MBERT ON THE SECRET INFIRMITIES OF YOUTH AND MATURITY, With 40 coloured engravings on steel. Just published, and may be had in French or English, in a sealed envelope, 2s. 6d.; or paper-bound, from forty to sixty shillings.

SELF-PRESERVATION: A Medical Treatise, on the Physiology of Marriage, and on the Secret Infirmities and Disorders of Youth and Maturity, usually acquired in an early period of life, which enervate the physical and mental powers, diminish and enfeeble the natural feelings, and exhaust the vital energies of Manhood, with Practical Observations on the Treatment of Nervous Debility, whether arising from these causes, close study, or the influence of tropical climates; local and constitutional weakness, syphilis, stricture, and all diseases and derangements resulting from induration; with 40 coloured engravings, illustrating the Anatomy, Physiology, and Diseases of the Reproductive Organs, explaining their various structures, uses, and functions, and the injuries that are produced in them by solitary habits, excesses, and infection.

By SAMUEL LA'MBERT, M.D., 37, BEDFORD-SQUARE, LONDON. Doctor of Medicine, Matriolated Member of the University of Edinburgh, Licentiate in Apothecaries' Hall, London, Honorary Member of the London Hospital Medical Society, &c.

REVIEWS OF THE WORK. “The author of this singular and talented work is a legally qualified medical man, who has evidently had considerable experience in the treatment of the various disorders, arising from the follies and frailties of early indiscretion. The engravings are an invaluable addition, by demonstrating the consequences of excesses, which must act as a salutary warning to youth and maturity, and by its perusal, many questions may be satisfactorily replied to, that admit of no appeal, even to the most confidential friend.”—*Eva*.

“Unquestionably this is a most extraordinary and skillful work, and ought to be extensively circulated; for it is quite evident that there are peculiar habits acquired at public schools and private seminaries, which are totally unknown, and concealed from the conductors of those establishments, and which cannot be too strongly reprobated and condemned. The engravings that accompany the work are clear and explanatory; and being written by a duly-qualified medical practitioner, will, doubtless, be the means of saving many a youth, as well as those of maturer age, from the various evil consequences resulting from early indiscretions.”—*Magnet*.

Sold by Kent and Richards, 52, Paternoster-row; Hannay, 63, Oxford-street; Sharpe, Titchborne-street, Haymarket; Mansell, 115, Fleet-street; Gordon, 146, Leadenhall-street; or free by post, for 42 stamps, from the author's residence, who may be consulted personally (or by letter) on these disorders daily, from 10 till 4 and from 5 till 8.

Illustrated by 26 Anatomical Coloured Engravings on Steel, On Physical Disqualifications, Generative Impotence, and Impediments to Marriage. New Edition, enlarged to 196 pages.—Just published, price 2s. 6d., or by post, direct from the establishment, 3s. 6d. in postage stamps.

THE SILENT FRIEND: a medical work, on the infirmities and decay of the generative system, from excessive indulgence, infection, and the inordinate use of mercury, with remarks on marriage, and the means of obviating certain disqualifications, illustrated by 26 coloured engravings. By R. & L. PERRY & CO., 19, BERNERS-STREET, OXFORD-STREET, LONDON. Published by the authors; sold by Strang, 31, Paternoster-row; Hannay, 63, Oxford-street; Gordon, 146, Leadenhall-street; Sharpe, Titchborne-street, Haymarket; and Gordon, 146, Leadenhall-street.

PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative impotency; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. The consequences of neglect, and of the abuse of mercury are also clearly pointed out. This section is illustrated by 17 coloured engravings.

PART THE FOURTH treats of the prevention of disease by a simple application, by which the danger of infection is obviated. Its action is simple, but sure. It acts with the virus chemically, and destroys its power on the system. This important part of the work should be read by every young man entering into life.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

THE CORDIAL BALM OF SYRACUS is exclusively employed in treating nervous and sexual debility, impotency, &c., 11s. and 33s. per bottle.—THE CONCENTRATED DEFENSIVE ESSENCE, an anti-syphilitic remedy, for purifying the blood in cases of infection, secondary symptoms, eruptions, and the abuse of mercury, 11s. and 33s. per bottle.—PERRY'S PURIFYING SPECIFIC PILLS, 2s. 9d., 4s. 6d., and 11s. per box: a certain remedy in gonorrhoea, gleet, stricture, and chronic inflammation of the bladder.—Consultation fee, if by letter, 2s. 1s. 6d. payable, with advice, to be had at the establishment only, by which the fee, 2s. 1s. 6d., is saved.—Attendance daily at 19, Berners-street, from 11 to 2, and 5 to 8; on Sundays, from 11 to 1.

Sold by Sutton and Co., 10, Bow Church-yard; W. Edwards, 61, St. Paul's Church-yard; Barclay and Sons, Farringdon-street; Butler, 4, Cheap-side; R. Johnson, 63, Cornhill; L. Hill, New Cross; W. B. Jones, chemist, Kingston; J. W. Tanner, Egham; S. Stone, Windsor; J. B. Shillock, Bromley; T. Riches, London-street, Greenwich; T. J. Woolwick, Ede and Co., Dorking; and John Tharby, High street, Romford. To whom may be had the *Silent Friend*.



## JOHN WEALE has NOW READY for the NOVEMBER MONTH.

TREDGOLD ON THE STEAM-ENGINE. New Edition. Part III.—Price 2s. 6d.  
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In the course of November will be published:—Rudiments of Geology, price 10d.; Rudiments of Electricity, price 10d.; Rudiments of Mechanics, price 10d.; Rudiments of Civil Engineering, Vol. II., price 10d.; Rudiments of Architecture, Two Vols., 10d. each.—And Rudiments of the Steam-Engine, by Dr. Lardner, price 10d.

89, High Holborn.

## THE LONDON AND NORTH-WESTERN RAILWAY.

This day, price Eighteen-pence.

## ARE RAILWAYS A GOOD INVESTMENT? The QUESTION CONSIDERED, by an Examination of the above Company's Statement for the half-year ending the 30th June, 1848.

By ROBERT FRANK CLEVELAND.  
London: Edinborough Wilson, 11, Royal Exchange.

## STEAM TO INDIA AND CHINA, via EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS AND LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.  
BOOK PASSENGERS AND RECEIVE GOODS AND PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA.—On the 20th and 29th of every month. CONSTANTINOPLE.—On the 29th of the month. ALEXANDRIA.—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

ITALY.—Genoa, Leghorn, and Civita Vecchia, occasional trips—next departure 29th of November.

For plans of the vessels, rates of passage-money, and to secure passages, and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

## NOTICE TO SHIPPERS OF GOODS AND PARCELS, per PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY'S STEAMERS, to INDIA AND CHINA.—GOODS AND PARCELS sent direct to the company's parcel office, on or before 5 P.M., on the 17th of each month, are forwarded at less cost to shippers than when sent through any intermediate channel. Cases must not exceed 112 lbs. weight each, for Aden, Ceylon, Madras, Calcutta, and China; and 40 lbs. each case for Bombay. No package for India or China can, under any circumstances, be shipped at Southampton, unless it be cleared through the Custom-house, and placed alongside the steamer by noon on the 19th of each month.

Detailed particulars can be obtained on personal application, or by writing. Parcel Department, 122, Leadenhall-street.

## CAMERON'S COALBROOK STEAM COAL &amp; SWANSEA AND LOUGHOR RAILWAY COMPANY.

Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the shareholders of this company will be HELD in the company's offices here, on Wednesday, the 15th day of Nov. inst., at One o'clock in the afternoon precisely, for the purpose of considering the report of the committee of shareholders appointed at the general meeting on the 28th of July last, and of disposing thereof, and dissolving the said committee; also for the purpose of considering, amending, altering, or repealing certain rules, regulations, and provisions of the Deed of Settlement, regulating and incorporating the company, to be then submitted to the meeting, and of entering into such resolutions thereon as may be necessary for carrying the same into effect.

By order of the board of directors.  
A. C. HOWDEN, Secretary.

Company's Offices, 2, Moorgate-street, London, Nov. 1, 1848.

## CASCADE MINING COMPANY.—At a Special General Meeting of the shareholders, or adventurers, in the Cascade Mining Company, held at the Queen's Arms Tavern, Chesham, London, on Monday, the 30th day of Oct., 1848, at Two o'clock in the afternoon, for the purpose of accepting of the resignation of the pursuer, and for electing another pursuer in his room; and also for taking into consideration the expediency of closing the share list, and raising funds for paying off the debt upon the mine, and resuming operations.

Resolved.—That SAMUEL LEWIS, Esq., be chairman.

Present:—Messrs. Samuel Lewis, David Duthoit, Joseph Marsh, James Truscott, J. B. Strickland, T. H. Taunton, William Snell, Rev. F. Taunton.

Mr. William Snell having resigned his office as pursuer; it was proposed, seconded, and unanimously carried, that Mr. William Snell be requested to continue the office of pursuer until another be appointed at a future meeting.

Proposed by Mr. James Truscott, and seconded by Mr. T. H. Taunton, and resolved unanimously.—

That the remaining unappropriated shares in the Cascade Mine be offered at 5s. a share to such of those shareholders who have already paid their deposit of 20s. per share, according to their present holding, and that the pursuer be authorised to communicate this resolution to the respective shareholders alluded to, requesting an answer on or before the 9th November next.

Proposed by Mr. J. B. Strickland, and seconded by Mr. T. H. Taunton, and unanimously resolved.—

That this meeting be adjourned to Monday, the 13th day of November next, at the Queen's Arms Tavern, Chesham, London, at Two o'clock in the afternoon, to receive a reply to the above resolution from the shareholders, appoint a finance committee and pursuer, and on other general business, and that a copy of these resolutions be forwarded to each shareholder.

(Signed) SAMUEL LEWIS, Chairman.

## CALLINGTON MINES COMPANY.—At the Quarterly General Meeting of proprietors, held on Wednesday, the 25th inst., at the offices of the company, 44, Finsbury-square, London, it was

Resolved.—That the reports and accounts, now read, be received, adopted, and entered in the cost and transfer book.—Carried unanimously.

Resolved.—That the thanks of the shareholders be presented to the chairman and directors, for their able and judicious management of the company's property.—Carried unanimously.

## GADAIR MINING COMPANY.—At a Meeting of the adventurers in the Gairair Mines, held pursuant to advertisement, at the Queen's Arms Tavern, Chesham, on Thursday, the 25th inst.,

G. W. BLANCH, Esq., in the chair.

The notice calling the meeting, and the minutes of the preceding meeting, were read, and also before the meeting.

It was resolved.—That the honorary pursuer be requested to call a special general meeting of the adventurers, to be held on Thursday, the 16th November next, for the purpose of forfeiting the shares of the several parties holding the same, on which the calls made, and becoming due on the 29th August last, and the 7th of Sept. last, should then remain unpaid, or taking such other measures as might be deemed expedient for the recovery thereof.

G. W. BLANCH, Chairman.

The thanks of the meeting were given to the chairman.

## LEWIS MINES COMPANY.—At the Quarterly General Meeting of proprietors, held on Wednesday, the 25th inst., at the offices of the company, 44, Finsbury-square, London, it was

Resolved.—That the reports and accounts, now read, be received, adopted, and entered in the company's cost and transfer book.—Carried unanimously.

Resolved.—That an expression of thanks be voted by the shareholders to the chairman and directors, for their energetic and careful management of the mine and property of this company.—Carried unanimously.

Resolved.—That the thanks of the meeting be presented to Mr. Johnson, for his gratuitous and kind attention to the interest of the company.

## LOSTWITHIEL CONSOLS MINE.—Copy of Resolutions passed at a Special General Meeting of the adventurers, held at the offices, No. 4, King-street, Chesham, London, on the 2d November, 1848.

It was resolved.—That the pursuer be requested to give immediate legal notice to those shareholders in arrears of call up to and including that due 20th June last, that their shares will be absolutely and irrevocably forfeited unless the said call or calls be paid to the bankers of the company before the 30th day of November, 1848.

It was also resolved.—That the pursuer call a special general meeting of the shareholders for the said 20th day of November, to be held at the offices, No. 4, King-street, Chesham, London, at One o'clock precisely, for the purpose of declaring all such shares forfeited upon which the calls shall not be paid up in accordance with the resolution.

It was resolved.—That a call of £2 per share be now made, payable on or before the 30th day of November, 1848, to the bankers of the company, the London and Westminster Bank (Southwark Branch), to the credit of Thomas Ruston and others.

JAMES CROFTS, Secretary.

## TAMAR SILVER-LEAD MINING COMPANY.—At an Annual General Meeting of the shareholders in this company, held at the offices, 44, Finsbury-square, London, on Thursday, the 26th inst.,

P. M. JOHNSON, Esq., F.R.S. and F.G.S., in the chair.

The following resolutions were passed:—

Resolved.—That the reports and accounts, now read, be received, adopted, and entered in the company's minute book.—Carried unanimously.

Resolved.—That a special vote of thanks be presented to Mr. P. N. Johnson—the shareholders feeling deeply indebted to him for the vast benefits which the company has sustained by the establishment of the smelting-works, and for his scientific and able management of this department of the company's property, and also for the constant care and successful efforts which he has manifested in conducting the general affairs of the company.—Carried unanimously.

Resolved.—That the cordial thanks of the shareholders be presented to the chairman and directors, for their ability and energy in conducting the several departments of the company's property, and for the successful results thereby produced.—Carried unanimously.

## THE MINING ALMANACK: under the immediate sanction and patronage of His Royal Highness Prince Albert.

Communications to be addressed to Mr. Henry English, 25, Fleet-street, London.

## MONEY.—MESSRS. KILLICK &amp; CO. (late WINSTANLEY, KILLICK, &amp; Co.), SHAREBROKERS, inform their friends and the public, that they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms: they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged.—6, Bank Chambers, opposite Bank of England.

## GROWA SLATE COMPANY, TREVALGA, COUNTY CORNWALL.

1300 parts, or shares, of £5 per part, or share.

NOW IN WORK ON THE "COST-BOOK" PRINCIPLE.

This quarry has been worked for many years by Mr. Avery, of Delabole, so well known and universally successful in the slate trade, which is itself a guarantee of the value of the property. The lease of that gentleman has, however, expired, and the present proprietors propose a company to give full and greater impetus to the works.

The present lease is for 90 years from Lady-day, 1848, at a yearly rental of £100, without Royalty or dues of any kind.

The character of the slate has been long established throughout the United Kingdom, and on the continent, as being of the most superior description in every respect, tenacity, durability, colour, singular imperviousness to water, and resistance of atmospheric decomposition. In fact, it is of the first class slate, and shareholders residing in the metropolis, or its vicinity, have an opportunity of witnessing its appearance and effects by examining the roof of Camberwell New Church, the north side of which is covered with this slate, in slabs, with slate rolls, and is scarcely distinguishable from lead; while the south side, which is roofed with Bangor slate, will be found to be very inferior in every respect. The appearance of the one is beautiful in the extreme, while the other is the reverse. The one is also without a fracture of any sort, but the Bangor slate is much split and patched in many places. It is a curious coincidence of circumstances, that the slates of Growa and Bangor should be thus placed in juxtaposition, but nothing can be more satisfactory for those who desire to invest in this undertaking than to have such an opportunity of seeing demonstration of the superiority of Growa slate over that of Bangor, which hitherto was supposed to be without rival.

The new church of St. Matthew, in the City-road, is likewise covered with "rags" of this slate.

The inhabitants of Manchester have also an opportunity of seeing the Growa slate. The beautiful church of Worley, near Manchester, built by the Earl of Ellesmere, being covered with slabs similar to Camberwell Church. The roof of the elegant structure near Frome, Somersetshire, denominated "The Chantry," is a specimen of this slate, as is also the church of Trevelga, near Boston, in Lincolnshire.

All the necessary machinery is on the quarry. It is situated on the cliffs in the parish of Trevalga, within only one mile of the port of Boscawen. Vessels, however, can load at the quarry itself during three-fourths of the year, and requisite apparatus has been adjusted from the cliffs, to many fathoms at sea, to enable vessels to ride quietly while receiving their cargo, and ships of 130 tons have been loaded in four hours.

Prospectuses, and every information, may be obtained on application to the offices, No. 57, Threadneedle-street, City.

## REAL DEL MONTE MINING COMPANY.—(EX-DEBT).

Capital, £100,000, in shares of £1 each, without further liability.

MAJOR MORSE-COOPER.  
JOHN H. FAGAN, Esq.  
WILLIAM F. MILLS, Esq.

BANKERS—Brown, Janson, and Co., 32, Abchurch-lane, Lombard-street.

The meeting of the 25th of September dissolved the old company, and that of the 30th instant confirmed that dissolution.

It now becomes an anxious and interesting question whether so essentially good and valuable an undertaking can be revived, or whether of necessity it be abandoned as a total loss.

It is confidently believed, that the adventure (being now relieved from the incubus of a debt of £40,000, with an accumulating interest at 4 per cent., aided by the exercise of a rigid economy consistent with efficiency in every department, both at home and abroad), may be rendered a profitable investment, and to a considerable extent be the means of retrieving present losses.

It is, therefore, proposed to re-construct the Real del Monte Mining Company, having "economy and perseverance" for its basis, by which means the advantages of former outlay may be secured, and the disadvantages of a lavish and profuse expenditure avoided.

Your trustees are induced to believe, after a most anxious and careful consideration of all the circumstances and information they have obtained on the subject, that—

The principal cause of the failure of the Real del Monte Company is to be found in the fact that the mines have never been fully worked, on account of the inefficiency of the drainage power. If the mines could have been properly and constantly drained, there is no doubt that large profits would have resulted; but it was impossible to make profits while the steam-engines were so repeatedly overstrained, and their working interrupted by frequent breakages, removals, and alterations.

The late directors had taken steps to furnish another very powerful engine, when the war in Mexico intervened, which prevented them from sending it, and led, in consequence, more immediately to the failure of the company.

It is now proposed to dispense with any new engine from England, and apply all the present force to the prosecution of the deep adit, called the adit de la gran porcion, which being already driven, the whole, it is believed, may be completed in about four years; and as, in its course, it will intersect several very promising veins, it is expected that considerable quantities of silver ore may be raised from it long before it is finished.

Real del Monte presents one of the finest mining fields in the world, the veins or lodes being very numerous, running both east and west, and north and south, all of them more or less productive of ores of silver.

The great adit above-mentioned, which has been driven about 900 yards from its mouth, has already draining off a good deal of water, and will drain the whole of the mines in the neighbourhood. It will intersect the Valenciana, San Felipe, and other great veins, before reaching Moran, which mine yielded a profit of £30,000 in 1847, and continues productive.

From Moran the adit will be driven upon the Escovar vein, which in the upper workings yielded very large returns, and from which still more may be expected at the deeper level. Besides, however, exploring new ground upon veins of known productiveness, the adit will enable the company to work upon the old mines considerably below their present depth, and that they are by no means exhausted, and is proved by the reports of the mine agents, and the produce obtained from them whenever accessible.

Moreover, there is a great extent of ore ground already laid open, that will yield large quantities of an inferior quality, but which may be reduced to advantage, by means of the improvements contemplated in the hacienda.

The recent fall in the price of quicksilver, and the probability of its being cheaper, will materially benefit the mines, independently of the introduction of cheaper processes of reducing the ores.

The following statement will show that very little would have turned the scale in favour of the company:—

|      |          |          |
|------|----------|----------|
| 1841 | 8790,673 | 8794,469 |
| 1842 | 819,598  | 858,514  |
| 1843 | 778,998  | 785,182  |
| 1844 | 697,047  | 667,446  |
| 1845 | 633,847  | 603,642  |
| 1846 | 714,860  | 764,694  |
| 1847 | 747,978  | 633,039  |

It must be observed, that the expenditure in 1841 included the cost of a 75-inch cylinder steam-engine, which amount to about £100,000, including carriage to the mines and the erection; that in the subsequent years very heavy costs were incurred in the alterations and removals of engines, and more than £100,000 was expended on improvements and additions at the hacienda.

During all this time, too, the price of quicksilver was maintained at 4s. 6d. per pound in England, being 2s. 6d. per pound higher than the price in 1830. The quantity of quicksilver consumed in the company's works during the 7 years was 286,947 pounds, so that the difference of 2s. 6d. per pound, above noticed, caused an extra expenditure of at least £180,000.

A reaction is now taking place; the price is at present 3s. 6d. per pound, and as discoveries are being made in California, and in the district south-west of Mexico, a further reduction is to be expected; but even 1s. per pound is equal to a saving of upwards of £5000 per annum at Real del Monte upon the very moderate consumption of 1847, when only 24,700 pounds of quicksilver were used, owing to the introduction of the barrel process of amalgamation and improvements in the ordinary method.

In the foregoing statement it is desired to show, that by the completion of the great adit, the drainage of the mines will be rendered perfect and constant; that it will not only relieve the old deep mines, but will also lay open a vast extent of ground on the well-known productive veins; that so much work has been already done as to facilitate the progress of what remains for completion; and that the future expenditure will bear a much smaller ratio than formerly, as compared with the returns.

This expenditure the present parties propose effectually to restrain within the limits of their means and fixed plans, if supported by the public, and a proprietary as persevering and liberal as the last have proved themselves to have been.

It is therefore proposed, To negotiate for the purchase of the whole plant, and interest of the old shareholders, on equitable terms.

To give a preference in the new company to the shareholders, and holders of loan-note debentures of the old company.

To divide the mine into 100,000 shares, on which a deposit of £1 per share only shall be made, without further liability.

To communicate with, and re-organise the present management in Mexico, by making such alterations and arrangements as past experience may point out as desirable, keeping the present object view of an economy which does not cripple efficiency.

To secure the valuable services and assistance of John Phillips, Esq., the secretary to the old company, whose perfect knowledge of the property and the requirements of the Mexican staff and establishment, will enable the new company to act with vigour, certainty, and economy.

It is intended, by the present projectors of the revival of this company, at the first general meeting called after the capital is subscribed, to resign their trust into the hands of the shareholders at large, for the purpose of forming a direction; or they will remain at their posts, and other shareholders added to their numbers sufficient to form an efficient working body, without unnecessary expense; the present trustees being only individuals who have suffered severe losses in the original company, and yet believe there is no reason for the total sacrifice of the whole property.

They also consider the proper and fitting moment for an energetic effort is the moment of relief from the overwhelming debt of £40,000, and they confidently call upon their fellow-shareholders to come forward and aid their exertions.

Should there be an insufficiency of capital subscribed, the deposit will be returned. Applications for shares and prospectuses to be made to R. E. Little, stock broker, Stock Exchange, and 11, Warren-court, Throgmorton-street.

London, October 31, 1848.

## ANOTHER CURE OF CONSUMPTIVE COUGH BY DR. LOCOCK'S PULMONIC WAFERS.—From Mr. James Simpson, 43, Seymour-place, Bryanston-square. Gentlemen: I have been afflicted for many years with a most severe cough (which was always said to be consumptive), and for which I never found a remedy until I used your Wafers, which, from the benefit I have received from them, I shall most strongly recommend to any one afflicted as I was. To singers and public speakers they are invaluable for clearing and strengthening the voice.—Edin., 1st Nov. 1848.

Agents—De Silva & Co., 1, Bridge-lane, Fleet-st., London; and all medicine vendors.

Note.—Full directions are given with every box in the English, German, and French languages.—These wafers, containing antacid and sedative properties, effectually prevent irregularity of the bowels.

## ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &amp;c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS AND ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY,

23, HAWLEY-ROAD, KENTISH TOWN, LONDON.

To which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

## UNDER BRITISH AND FOREIGN LETTERS PATENT.

CAPITALISTS ARE INVITED TO INSPECT THE SECURE AND PROFITABLE INVESTMENT IN HUTCHISON & CO.'S IMPROVED AND IMPROVED STONE, Chalk, Sand, Plaster, Wood, and Carton-roof Sheeting WORKS. Tying in diamond courses, supplied at Calverly Quarry, Tunbridge Wells, at 6d. per foot super, perfectly compact and impervious. Other orders executed.—Also, a la Moleculiere, near Caen, France.—Chief offices, East Temple Chambers, No. 2, Whitefriars-street, London, where specimens and particulars may be seen.—Licenses granted also for Hutchison's Patent SAW FRAMES.

## IMPORTANT TO EMIGRANTS.—UNITED STATES OF AMERICA (in the State of Georgia).—FOR SALE, ONE HUNDRED AND TWENTY THOUSAND ACRES OF FREEHOLD LANDS.

The above lands lie between 31° and 32° north—distant from the sea about 100 miles, and from England 18 or 20 days' sail. Climate delightful, and locality healthy—bounded by the great navigable rivers, the Flint and the Ocmulgee—by the former a communication is open with the Gulf of Mexico, the Florida, Texas, New Orleans, the Mississippi, and Mobile Rivers, navigable for several thousand miles; and by the latter (the Ocmulgee), which falls into the Altamaha, a direct communication is open to the Atlantic Ocean. At the recommendation of many philanthropic and influential friends, 100,000 acres of the lands situated in Irwin County have been appropriated, to divide into allotments of 25 acres, to enable persons of the most limited means to become purchasers, and embrace the opportunity of emigrating to a country where they will reap the fruits of their industry, and eventually become independent members of society.

It is proposed to divide the 100,000 acres into 4000 lots of 25 acres, at 8s. per acre, or £10 per plot. It is also proposed to issue scrip certificates for each 25 acres, to be paid for in four equal instalments of 2s. per acre—the first on delivery of the scrip, the remaining with a rest of three months between each. At the last payment the scrip receipt will be exchanged for a certificate, registered in the Land Office of the State, which will entitle the holder to the possession in fee of the lot numbered and specified in such certificate.

An agent on the lands will point out and place the holder of said certificate in possession.

The purchasers of the several lots will be entitled to the minerals or products which may be found on the property so secured—thus considerably enhancing the value to be attached thereto.

It is further proposed, that the agent at Charleston or Savannah shall advance the emigrant, on arrival at either port, by way of loan, on the deposit of his registered certificate, such sum as he may require (not exceeding 4s. per acre) to be repaid in twelve months, with interest at 5 per cent., or at such periods as may be agreed upon. This advance to be applied solely to defray expenses incurred in reaching his location, and to the purchase of necessary implements required for his use. Should default arise by non-payment of loan, or non-fulfilment of agreement, the land referred to in said certificate with all and every improvement thereon, will become forfeited to the vendor, or his assigns, and to whom the purchaser or his assigns will be bound to render up peaceable possession, under a penalty of £50, recoverable in any court of justice in the State of Georgia. Immediate steps will be taken to re-survey and divide the land into allotments of 25 acres. The survey, it is hoped, will be completed within six months; but previous to which no general location can take place. Notice will be given in the newspapers of the receipt of the re-survey, and new maps of the different lots. To such parties as, in the meantime, choose to pay in full for their allotments, a discount of 5 per cent. per annum will be allowed.

Every information may be obtained relative to the above, &c., from Richard Kelly, Esq., 1, Royal Exchange Buildings, London, where applications for scrip may also be addressed, or to Mr. James Todd, Abergeenny.

## PROFESSIONAL LIFE ASSURANCE COMPANY,

Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution.

Incorporated.—Capital £250,000.

Established upon the mixed, mutual, and proprietary principle.

Rates essentially moderate.—Every description of policy granted. Immediate, survivorship, and deferred annuities; and endowments to widows, children, and others.—Every policy (except only in cases of personation) indisputable.—The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties.—Persons of every class and degree admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 14s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.

Prospectuses, with full details, may be had at the office.—Applications requested from parties desirous of becoming agents. EDWARD BAYLIS, Actuary and Secretary.

Office, 76, Cheapside, London.

## DESICCATING OR DRYING PROCESS.—DAVISON

and SYMINGTON'S PATENT.—TO MANUFACTURERS AND OTHERS requiring DRYING POWER, this PROCESS has been pronounced by those who have adopted it nearly three years, "as surpassing every thing before seen or tried, for efficiency, purity, cleanliness, cheapness, expedition," and it may be added—safety. It has already been applied to no less than 15 distinct branches of trade, with equal and most perfect success, from the drying of the thinnest paper or the most delicate fabric, to the roasting of coffee, and such like substances; in other words, generating a continuous and controllable temperature, varying from that of the atmosphere to 500° and 600°; if required, and attended with many important advantages, not obtainable by hot fires, coals, steam, hot-water pipes, &c.

For Licenses, and other particulars, apply to Mr. ANGUS JENNINGS, Secy. at the offices of the Patent Desiccating Company, 41, Gracechurch-street, City.

## DESICCATED OR SEASONED WOOD.—DAVISON

and SYMINGTON'S PATENT.—FOR ALL BUILDING PURPOSES, JOINERY, CABINET-WORK, MUSICAL and other INSTRUMENTS, or wherever thoroughly SEASONED MATERIAL is required, for this and tropical climates, this PROCESS EFFECTS, in the SEASONING OF WOOD—more in weeks, than years can accomplish in the ordinary way. The gum is hardened, the fibre increased in strength, and shrinkage, as well as decay, prevented. The invention having been accurately tested, and adopted, by Her Majesty's Honourable Board of Ordnance, and extensively by the leading architects and builders, in the erection of public and other buildings—by cabinet-makers and musical instrument-makers, amongst others, in the execution of the most expensive workmanship—the company feel themselves warranted in recommending the invention as worthy of universal adoption, both as regards economy and efficiency.